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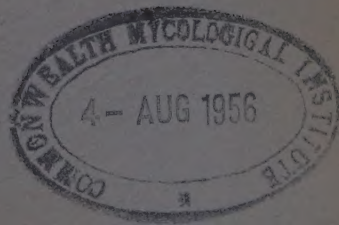
THE VETERINARY BULLETIN

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THE
VETERINARY BULLETIN

Vol. 26]

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[No. 8

DISEASES CAUSED BY BACTERIA AND FUNGI

KLASTRUP, N. O. (1956). **Clinical, biochemical and bacteriological effects of mastitis produced experimentally with staphylococci.**—*Nord. VetMed.* 8, 193-223. [In English. German and Danish summaries.] **2473**

Using 2 strains of haemolytic, coagulase-positive staphylococcus, K. made 18 inoculations into 8 quarters of 3 cows, each in its first lactation. By first allowing the staphylococcus to enter its growth phase in milk withdrawn from the quarter to be inoculated, K. produced 7 cases of mastitis with very small numbers of organisms. The inoculum varied from 1-139 cocci per quarter. Statistical interpretation showed that mastitis was almost certain to occur if more than 40 cocci were inoculated.

The degree of reaction varied from acute mastitis with loss of the quarter to subclinical mastitis with eventual atrophy. Details of clinical, bacteriological and biochemical examinations are given.—IAN DAVIDSON.

BOAKE, W. C. (1956). **Antistaphylocoagulase in experimental staphylococcal infections.**—*J. Immunol.* 76, 89-96. [Abst. from author's summary.] **2474**

Rabbits actively immunized with coagulase had some resistance to i/v challenge with coagulase-positive (C-P), but not coagulase-negative (C-N) staphylococci. When mice were injected i/p with C-P staphylococci suspended in a clotting system (fibrinogen/cofactor), serum from rabbits immunized with coagulase diminished the virulence of these staphylococci, provided that the serum was incubated with the challenge organisms for 30 min. before the addition of the clotting system. Virulence was also diminished by human serum containing coagulase-inhibiting antibodies. This diminution of virulence was not produced by alpha antitoxin or staphylococcal agglutinating serum, and was not demonstrable with C-N staphylococci.

PUSAT, M. M. (1955). Kısırkların sikit âmilî streptococların tipleri ve streptococcus genitalium üzerinde bir münakaşa. [**Streptococci isolated from the genital system of mares and from aborted foetuses.**]—*Türk vet. Hekim. dern. Derg.* 24, 2039-2047. [In Turkish. Abst. from English summary.] **2475**

Streptococci belonging to serological groups C and D were isolated from the genital tracts of mares and from aborted foetuses. Of these 19 were *Str. zooepidemicus*; 9, *Str. equi*; 2, *Str. equisimilis*; 6, *Str. faecalis*; 1, *Str. equinus*; 5, unclassified. The haemolytic and fibrinolytic properties of some of the strains are discussed.—T.E.G.R.

BALDELLI, B. (1956). Infezione da *Streptococcus zooepidemicus* nei nutria (*Myopotamus coypus*). [**Streptococcus zooepidemicus infection in nutria (*Myocastor coypus*).**]—*Vet. ital.* 7, 195-204. [English, French and German summaries.] **2476**

B. reported outbreaks of streptococcal infection in nutria. The epidemics were characterized by a high percentage of abortions, and deaths in both males and females. The P.M. features were those of septicæmia. Treatment with penicillin and streptomycin was unsuccessful, and B. recommended the use of prophylactic injections of formalized cultures of *Str. zooepidemicus*.

—I. W. JENNINGS.

JACKSON, J. J. (1956). **Facial paralysis in bovines.**—*J. S. Afr. vet. med. Ass.* 27, 61-62. **2477**

A report on 6 cases. P.M. examination of 3 animals revealed a small abscess in the facial nerve, containing streptococci. Two animals recovered which were treated with 4 or 5 million units of penicillin daily for 3 days. It is suggested that the condition is brought

about by violent jerking of the head when the animal is held by the yoke in a crush pen.

—M.G.G.

- PERRY, K. D. & BRIGGS, C. A. E. (1955). A common type antigen in streptococci of groups D and E.—*J. Path. Bact.* **70**, 546-548. **2478**

Out of 68 strains of streptococci from the rumen of cattle, classified as *Str. bovis* (Group D), 20 strains possessed common antigens to groups D and E.—R.M.

- CLARENBURG, A., KAMPELMACHER, E. H. & LOK, B. (1956). Bemoelijkte bacteriologische miltvuur-diagnose door antibiotica-therapie. [**Bacteriological diagnosis of anthrax hampered by antibiotic therapy.**]—*Tijdschr. Diergeneesk.* **81**, 216-218. [In Dutch. English, French and German summaries.] **2479**

A cow with a very high body temp. was treated for 2 days with penicillin and streptomycin before being slaughtered. At P.M. examination no anthrax bacilli were found in blood smears. Growth on culture media was inhibited, but organisms resembling *B. anthracis* were seen in smears of the cultures. A mouse inoculated i/m with culture died after 48 hours, and another inoculated s/c died after 5 days. In both mice, typical anthrax bacilli were present in spleen smears. Because of this difficulty in diagnosing anthrax, the authors requested practitioners to notify the meat inspection service of cases of acute illness treated with antibiotics before slaughter.

—R.M.

- HENDERSON, D. W., PEACOCK, S. & BELTON, F. C. (1956). Observations on the prophylaxis of experimental pulmonary anthrax in the monkey. — *J. Hyg., Camb.* **54**, 28-36. [Authors' summary modified.] **2480**

The evidence presented supports the hypothesis that the experimental form of anthrax induced by depositing a cloud of single spores on lung epithelium is initiated in the lymphatic region and not in lung tissue. Proportionately few of the deposited spores reach the lymph nodes. The majority seem to go through the first stages of germination but do not multiply.

Prophylactic measures are described for preventing infection by the pulmonary route.

- ORLANDINI, C. (1956). Sulla presenza di bacilli tubercolari nei muscoli e nei linfonodi muscolari di bovini colpiti da forme di complesso primario tubercolare. [*Mycobact. tuberculosis*

in the muscles and associated lymph nodes of cattle with localized primary TB. lesions.]—*Vet. ital.* **7**, 214-224. [English, French and German summaries.] **2481**

Tubercle bacilli were found in the skeletal muscles and intermuscular lymph nodes in 2 out of 18 cows with early primary TB. of the lungs.—I. W. JENNINGS.

- NASSAL, J. (1956). Cardia-Tuberkulose beim Rind. [**TB. of the rumen in a cow.**]—*Dtsch. tierärztl. Wschr.* **63**, 108-110. **2482**

P.M. examination of a 15-year-old cow which had ceased to eat and ruminate revealed TB. of the lungs, intestine and peritoneum, and a large lesion near the oesophageal orifice. The pathogenesis was discussed.—M.G.G.

- KERSTEN, H. E. (1955). Zur Beschleunigung der Meerschweinchen-Tierversuches bei der Tuberkulose-Diagnostik. [**A more rapid g. pig test for the diagnosis of TB.**]—*Zbl. Bakt. I. (Orig.)* **162**, 401-404. **2483**

In g. pigs inoculated with suspected tuberculous material, it was possible to make a diagnosis 19-20 days after inoculation by examining smears of popliteal lymph node obtained by single or, if necessary, repeated needle biopsies.—R.M.

- NASSAL, J. (1956). Tuberkulosenachweis bei Reagenten mit negativem Schlachtbefund. [**Confirmation of TB. in reactors having no macroscopic lesions when slaughtered.**]—*Rindertuberkulose*, **5**, 42-54. **2484**

N. examined the mediastinal and mesenteric lymph nodes from 1,000 cattle, reactors to the tuberculin test, in which no lesions could be found during ordinary P.M. examination at the abattoir. Careful examination of these lymph nodes revealed tuberculous lesions in 435 cases. Living, virulent tubercle bacilli were recovered from 35 diseased lymph nodes out of 42 tested.—R.M.

- LAING, A. D. M. G. (1955). The history and progress of the town milk supply tuberculin testing scheme. — *N. Z. vet. J.* **3**, 138-143. **2485**

The scheme, which came into operation in January 1951, is based on the application of the slaughter-compensation policy to reactors to the tuberculin test. By the end of the 3rd year 201,603 cattle out of a total of 210,432 in 3,404 herds were tested. Of these 12,670 (i.e., 6.3%) were reactors. Results for 1954 were encouraging although the scheme was hampered by opposition on the part of stock-

owners. Shortage of staff and non-cooperation by milk producers are serious difficulties which have still to be overcome for the proper working of the scheme.—T.E.G.R.

STEPHAN, J. & GERICHKE, D. (1955). Über die Abgrenzung unspezifischer Tuberkulinreaktionen. [**Differentiation of non-specific tuberculin reactions in g. pigs.**] — *Vet.-med. Nachr.* No. 4, pp. 201-206. [Supplement No. 4/1955. English summary p. 4; French summary p. 10; Spanish summary p. 16.] **2486**

G. pigs were infected s/c with avian or human tubercle bacilli or with a mixture of non-pathogenic mycobacteria (*M. phlei*, *M. smegmatis* and *M. lacticola*). With the use of avian tuberculin, bovine tuberculin or a "tuberculin" prepared from a mixture of *M. phlei*, *M. lacticola* and *M. smegmatis*, it was possible to differentiate tuberculin reactions in the infected animals. The criterion was the area of inflammation 48 hours after injection of the tuberculin.—M.G.G.

PODDUBSKI, I. V., FOMINA, A. Y. & AKULOV, A. V. (1956). [**Diagnosis and control of tuberculosis in fowls.**]—*Veterinariya, Moscow.* 33, No. 2, pp. 24-26. [In Russian.] **2487**

Little work has been done on the tuberculin test in fowls. With the 24-hour interval between injections, which is generally recommended, a minimum of positive reactors is detected. Desensitization plays an important role in producing false negatives. The authors examined 3,500 fowls by tuberculin test and P.M. examination, and concluded that an interval of 96-120 hours between injections is the most favourable, and reveals the greatest number of tuberculous birds.

—A. MAYR-HARTING.

COLOVER, J. & CONSDEN, R. (1956). **Experimental allergic encephalomyelitis produced by tubercle bacillus residues.**—*Nature, Lond.* 177, 749-750. **2488**

Heat-killed tubercle bacilli, previously extracted with acetone and ether, were subjected to the action of acids, alkalies and pepsin followed by extraction with fat solvents. The residue thus obtained set up allergic encephalomyelitis in g. pigs after a series of i/m injections. 10 g. tubercle bacilli yielded 1.9 g. residue: the latter was composed mainly of protein (in which glutaminic acid and alanine were the chief amino-acids) and probably mycolic acid.—R.M.

NETTLESHIP, A. & NETTLESHIP, M. (1956). **Finding of silver positive reticulum in early human tubercles.** — *Science.* 123, 505-506. **2489**

A network of silver-staining fibres was present at the commencement of the formation of a tubercle, when the only lesion was a small gathering of monocytes and lymphocytes.

—R.M.

ASAMI, N., ENDO, M., TSUCHIYA, K., TAJIMA, Y., SHIBATA, S., YABE, N. & HANASATO, T. (1955). **Studies on O-aminophenol azo tuberculin prepared from the culture filtrate of bovine type tubercle bacilli.** — *Jap. J. vet. Sci.* 17, 57-63. [In Japanese. Abst. from English summary.] **2490**

The intradermal reactions produced by o-aminophenol azo tuberculin are compared with those set up by Old Tuberculin. It is considered that deazotization does not increase the specificity of O.T.—T.E.G.R.

SZABÓ SZÜCS, J. (1955). Untersuchung der Tuberkulinerzeugungsfähigkeit von Tuberkelbazillenstämmen. [**Tuberculin-producing ability of some strains of tubercle bacilli.**]—*Acta vet. hung.* 5, 133-142. [In German. Russian summary.] **2491**

The ability of strains of tubercle bacilli to produce tuberculin is directly related to their rate of multiplication. For commercial production of tuberculin those strains are suitable which, using a 500-ml. flask containing 250 ml. medium, produce a bacterial mass of at least 900 mg. dry weight and which produce in the serum of cattle a haemagglutination-inhibition titre of 1:1260 or higher. Sauton medium at pH 7.2 was the most suitable for the production of mammalian type tuberculin.

—W. R. BETT.

LONG, D. A. & MARTIN, A. J. P. (1956). **Factor in arachis oil depressing sensitivity to tuberculin in B.C.G.-infected guineapigs.** — *Lancet.* 270, 464-466. [Authors' summary modified.] **2492**

Single s/c injections of arachis oil depressed sensitivity slightly but significantly. Purification yielded a non-toxic fraction which, in a dose of 0.000006 mg. per kg. of body wt., depressed sensitivity to a degree comparable with that obtained with cortisone acetate in a dose of 5 mg./kg., which is maximally effective. The active substance appears to be an amine with about 10-14 carbon atoms. A rich source is vegetable lecithin, derived from peanuts or soya beans. A similar, if not identical,

substance is contained in egg-yolk. The bearing of this factor on the work of Coburn *et al.* (1954) on the anti-rheumatic properties of egg-yolk is discussed.

HNATKO, S. I. (1956). **The application of bacteriophages to the study of acid-fast microorganisms from tuberculous patients.**—*Canad. J. Microbiol.* **2**, 39-44. **2493**

A number of non-pathogenic (for g. pigs) acid-fast micro-organisms were classified by means of mycobacteriophages. Of 33 strains tested, 24 were lysed by one or more phages. Of these, 21 were lysed by *M. smegmatis* phage. The organisms were recovered from gastric lavage, urine and sputum.

—A. S. GREIG.

CHANDLER, R. L. (1955). **A report on the use in New Zealand of Hole's complement-fixation test for Johne's disease.**—*N. Z. vet. J.* **3**, 145-150. **2494**

Over 2,000 bovine sera were tested. Confirmatory evidence was sought by ileo-caecal examination in 263 animals. Of these 263, Johne's disease was revealed in 29, of which 26 had given a positive reaction, one a doubtful and 2 a negative reaction to Hole's test. Of the animals in which Johne's disease could not be demonstrated, 17% had given positive reactions. These can partly be attributed to TB. infection.—M.G.G.

CAMERON, J. (1956). **Isolation of *Mycobacterium johnei* from faeces.**—*J. Path. Bact.* **71**, 223-225. [Author's summary modified.] **2495**

With modifications of the antiformin and oxalic-acid methods *M. johnei* was isolated from 10 of 12 specimens of bovine faeces and from all of 11 specimens of faeces from experimentally infected mice.

SIGURDSSON, B. (1956). **Immunological problems in paratuberculosis.**—*Bact. Rev.* **20**, 1-13. **2496**

A review article in which the author discussed the allergy of infected animals to tuberculin-like substances, diagnosis of the disease by complement fixation tests, and the production of active immunity against Johne's disease.—M.G.G.

SHECHMEISTER, I. L. (1956). **Pseudotuberculosis in experimental animals.**—*Science*, **123**, 463-464. **2497**

Latent *Corynebacterium pseudotuberculosis murium* infection has been observed in commercially bred mice. Activation of this

infection by radiation and other stressing agents may invalidate experimental results.

—M.G.G.

CHAMBON, L. (1955). **Isolement du bacille de Whitmore à partir du milieu extérieur. [Isolation of *Pf. whitmori* from the external environment.]**—*Ann. Inst. Pasteur.* **89**, 229-235. **2498**

Pf. whitmori was isolated (on liquid and on solid media) from samples of soil and mud and of stagnant water from marshes and rice fields. It is concluded that soil and stagnant water constitute the normal habitat of the organism. This seems to be borne out by the epidemiology of human melioidosis.

—T.E.G.R.

CHAMBON, L. (1955). **Résistance du bacille de Whitmore acquise *in vitro* et *in vivo* à l'égard du chloramphénicol, de l'aureomycine et de la terramycine. [Resistance *in vitro* and *in vivo* of *Pfeifferella whitmori* to chloramphenicol, aureomycin and terramycin.]**—*Ann. Inst. Pasteur.* **88**, 315-324. **2499**

Chloramphenicol has a bactericidal action against most strains of *Pf. whitmori*. There is no cross resistance between either chlorotetracycline (aureomycin) or oxytetracycline (terramycin) and chloramphenicol when employed singly, but resistance to each individual drug may develop when chloramphenicol is combined with either. It is possible that resistance to chloramphenicol is accompanied by an increased sensitivity to aureomycin.

—T.E.G.R.

I. WELLMANN, G. (1955). **Die Übertragung der Schweinerotlaufinfektion durch die Stubenfliege (*Musca domestica*). [Transmission of swine erysipelas by house flies.]**—*Zbl. Bakt. I. (Orig.)* **162**, 261-264. [English, French and Russian summaries.] **2500**

II. WELLMANN, G. (1955). **Die subklinische Rotlaufinfektion und ihre Bedeutung für die Epidemiologie des Schweinerotlaufs. [Sub-clinical swine erysipelas and its importance in the epidemiology of the disease.]**—*Ibid.* **162**, 265-274. [English, French and Russian summaries.] **2501**

I. Flies (*M. domestica*) were allowed to feed on cultures of *Erysipelothrix rhusiopathiae* and were then released into pig pens. An area of skin had been scarified on each pig before the release of the flies. Three out of 14 pigs developed swine erysipelas. Another 4 showed no symptoms but resisted subsequent

s/c inj. of the organism; W. concluded that these had probably had a subclinical infection.

II. W. stated that subclinical swine erysipelas was quite common, and could be experimentally set up by infection with strains of low pathogenicity. The presence of immune antibodies in pigs was detected by the haemagglutination-inhibition test and by the "growth test". In the latter test broth culture of a specially selected strain of *E. rhusiopathiae* was added to serial dilutions of sterile serum from the pig under test. With negative sera the liquid in the tubes became turbid and a precipitate formed, while with positive sera there was turbidity but no precipitate. Indirect evidence supported the view that erysipelas antibodies were transmitted to piglets in the colostrum.—R.M.

SIKES, D., NEHER, G. M. & DOYLE, L. P. (1956). **Swine erysipelas. I. A discussion of experimentally induced disease. II. Prophylactic effect of a commercially prepared bacterin in swine.**—*J. Amer. vet. med. Ass.* **128**, 277-281 & 283-286. **2502**

I. The symptoms, pathology and course were described of both the acute and chronic forms of experimentally induced swine erysipelas.

II. The vaccine gave some protection to 6 piglets which were challenged 6 weeks after vaccination. They had a mild febrile reaction and later developed chronic polyarthritis. Acute infection developed in 11 out of 15 piglets which were exposed 12 weeks after vaccination.—M.G.G.

ORLANDELLA, V. (1955). La coltura dell'*Erysipelothrix rhusiopathiae* in uova embrionate di pollo. [**Cultivation of *Erysipelothrix rhusiopathiae* on chick embryo.**—*Acta med. vet., Napoli.* **1**, 255-261. [English and French summaries.] **2503**

E. rhusiopathiae was pathogenic for the chick embryo, causing its death in 30-60 hours. The organism was demonstrated in the chorio-allantoic membrane, amnio-allantoic fluid and various organs and also in agar culture. Lesions in the infected chick embryo included hyperaemia, haemorrhage and oedema.—T.E.G.R.

ORLANDELLA, V. (1955). Ricerche sulla dissociazione dell'*Erysipelothrix rhusiopathiae* coltivato su agar-organ (fegato e pancreas). [**Dissociation of *Erysipelothrix rhusiopathiae***

grown on liver agar and on pancreas agar.] *Acta med. vet., Napoli.* **1**, 333-347. [English and French summaries.] **2504**

Abundant growth was obtained on the culture media used, but dissociation from the "S" to the "R" phase occurred; this was more marked on liver agar. The resulting colonies were rough with irregular borders and branches producing a "caput medusae" effect; the organisms were filamentous streptobacilli with non-specific agglutination.—T.E.G.R.

ORLANDELLA, V. (1955). Ricerche sull'azione dell'eritromicina nella infezione sperimentale del piccione da *E. rhusiopathiae*. [**Studies on the action of erythromycin in experimental *E. rhusiopathiae* infection of pigeons.**—*Acta med. vet., Napoli.* **1**, 359-375. [English and French summaries.] **2505**

Erythromycin, administered s/c or *per os*, was effective in the treatment of experimental *E. rhusiopathiae* infection in pigeons. Recovered birds did not develop any immunity.—T.E.G.R.

SMITH, H. WILLIAMS. (1956). **The chemotherapy of experimental *Erysipelothrix rhusiopathiae* infection in chicks and turkeys.**—*J. comp. Path.* **66**, 151-158. [Author's conclusions modified.] **2506**

E. rhusiopathiae was very sensitive *in vitro* to penicillin, terramycin, aureomycin, and furazolidone, moderately sensitive to streptomycin and chloramphenicol and completely resistant to sodium sulphadimidine. A single dose of either terramycin in oil, 100 mg./kg., or benzathine penicillin, 160,000 units/kg., given i/m, cured experimental *E. rhusiopathiae* infection in chicks and turkeys. Terramycin, procaine penicillin and penicillin were effective in multiple i/m doses. Streptomycin and chloramphenicol, given intramuscularly, and chloramphenicol, terramycin, aureomycin and furazolidone, given orally, were of little value. Treated turkeys were completely resistant to re-infection and their organs were not found to be latently infected with *E. rhusiopathiae*.

BAIN, R. V. S. (1956). **Studies on haemorrhagic septicaemia of cattle. VI. Experiments with oil-adjuvant vaccine.**—*Brit. vet. J.* **112**, 115-119. [Author's summary modified.] **2507**

A 3-ml. dose of vaccine previously described [*V.B.* **25**, 1890], immunized cattle and buffaloes as judged by a direct challenge 6

months later. The same dosage induced the formation of mouse protective antibodies which were in the blood of cattle 11 months after vaccination.

FRASER, I. E. B. & MULCOCK, A. P. (1956).

Staining of wool by bacterial pigments.

—*Nature, Lond.* **177**, 628-629. **2508**

In periods of wet weather several stains in fleeces may be caused by oxidation or reduction products of the pigment pyocyanine produced by *Pseudomonas pyocyanea*. Growth and pigment production by the organism are dependent upon rate of drying of the fleece from saturation. Under normal conditions of saturation and pH the fibres are stained green, but after prolonged wetting colour banding with brown and red bands appears above the green, but disappears on drying, leaving a yellowish brown or green colour. Of the many pigments isolated from the organism only hemipyocyanine and pyocyanine have been found to stain wool fibres.—W. E. PARISH.

DUGUID, J. P., SMITH, I. W., DEMPSTER, G. &

EDMUNDS, P. N. (1955). **Non-flagellar filamentous appendages ("fimbriae") and haem-agglutinating activity in *Bacterium coli*.** —

J. Path. Bact. **70**, 335-348. **2509**

The authors observed two types of appendages on 47 strains of *Bact. coli* under the electron microscope, namely, fimbriae (length 0.3-1 μ ; 100-250 per bacillus) and flagella (length 3-10 μ ; 1-4 per bacillus). The latter were present in all of 33 motile strains and in none of 14 non-motile strains. Fimbriae were present in 25 of the motile and 6 of the non-motile strains. These fimbriate strains agglutinated erythrocytes of various species, whereas most of the non-fimbriate strains did not. Five of the 47 strains possessed haemolytic activity; they were also fimbriate and haemagglutinating.—R.M.

WIERINGA, G. W. (1956). De invloed van

enting met verse en gedroogde pensinhoud op de ontwikkeling van de pensflora bij kalveren. [Effect of inoculating fresh and dried rumen contents on the development of the rumen flora in calves.]—*Tijdschr. Diergeneesk.* **81**, 242-249. [In Dutch. English, French and German summaries.] **2510**

In experiments with 10 calves and by the use of an "artificial rumen" technique, W. found that dried rumen contents had no influence on the development of the rumen flora of calves and did not prevent calf scours. Calves inoculated with fresh rumen contents devel-

oped a good cellulolytic flora within 2 weeks. Cellulolytic bacteria were killed during the process of drying rumen contents, but *Bact. coli* and aerobic spore-forming organisms were not killed.—R.M.

BAUMAN, H. E. & FOSTER, E. M. (1956).

Characteristics of organisms isolated from the rumen of cows fed high and low roughage rations.—*J. Bact.* **71**, 333-338. **2511**

The commonest micro-organisms in cultures of rumen contents of cows fed mostly roughage (lucerne hay) were Gram-positive rods resembling *Lactobacillus bifidus*. In the rumen contents of cows fed mostly grain, cocci similar to *Pediococcus* were commonest.—R.M.

JACOTOT, H. & VALLÉE, A. (1956). Sur le

pouvoir pathogène de *Bacterium viscosum equi* pour les petits animaux de laboratoire.

[Pathogenicity of *Bact. viscosum equi* for laboratory animals.] — *Ann. Inst. Pasteur.* **90**, 350-351. **2512**

A dose containing several million *Bact. viscosum equi* was necessary to kill mice, rats and g. pigs when injected i/p. The addition of mucin to the dose increased virulence considerably.—M.G.G.

VERGE, J., PARAF, A. & PETIOT, M. P. (1956).

Salmonellose bovine provoquée par *Salmonella bovis morbificans*. Considérations sur l'épidémiologie et la pathogénie des salmonelloses. [Salmonella infection in cattle caused by *S. bovis-morbificans*. Epidemiology and pathogenesis of salmonella infections.]—*Rev. Immunol.* **20**, 19-26. **2513**

The authors describe an outbreak of *S. bovis-morbificans* infection in cattle. The outbreak followed the usual course, and four months later the affected animals were found to be still carrying and excreting the organism. There is a discussion on the importance of the disease from the public health point of view.—I. W. JENNINGS.

FELGATE, C. A. G. & SWANN, H. C. (1956).

The use of nitrofurazone in the treatment of swine paratyphoid in the field. — *Vet. Rec.* **68**, 259-262. [Authors' summary modified.] **2514**

Of some 30 or 40 outbreaks of swine paratyphoid treated with nitrofurazone, with or without sulphadimidine, 10 are recorded. The encouraging results suggest that the use of nitrofurazone is a further advance in the treatment of swine paratyphoid.

TAYLOR, J. (1956). **Bacterial rodenticides and infection with *Salmonella enteritidis*.**—*Lancet*. **270**, 630-633. [Author's summary modified.] **2515**

In Great Britain between 1944 and June 1955, *S. enteritidis* var. *jena* accounted for 1,267 known cases of infection in man, of which 21 were fatal, and *S. enteritidis* var. *danyasz* for 413 cases, of which 2 were fatal. In animals *S. enteritidis* var. *jena* was isolated most commonly from g. pigs, mice and the lymph nodes of pigs, and *S. enteritidis* var. *danyasz* from rats, g. pigs, and mice. The use of bacterial rodenticides containing these organisms is no longer necessary and should be stopped.

PAGNINI, U. & PAPPARELLA, V. (1955). La prova dell'anello (ring-test) nella sierodiagnosi della pullorosi. [The ring test in *Salmonella pullorum* infection.]—*Acta med. vet., Napoli*. **1**, 407-412. [English, French and German summaries.] **2516**

A drop of suspect serum is mixed with raw cow's milk containing 10% antigen. The mixture, which is violet coloured, is allowed to stand at room temp. for one hour. If the colour clears, leaving only a violet ring on the surface, the reaction is positive; if the colour persists and a white ring appears on the surface, then the reaction is negative. This is considered a rapid and efficient method of diagnosis in *S. pullorum* infection, especially when large numbers of samples have to be tested.—T.E.G.R.

BELDING, R. C. (1955). **The incidence of *Salmonella pullorum* in wild pheasants in southern Michigan.**—*Poult. Sci.* **34**, 1441-1444. **2517**

Cultures were made from the organs of 65 pheasants and from 36 eggs. *S. pullorum* was demonstrated in 5 birds. No lesions were observed. Four of the 5 cultures were atypical in that they produced only acid from glucose and mannitol. The sites of infection could not be determined owing to the passage of shot through the intestines, but it is considered that some of the birds were intestinal carriers.—M.G.G.

ZETTL, K. (1956). Versuche zur Heilung der chronischen Pullorum-infektion mit Streptomycin. [Treatment of chronic *S. pullorum* infection with streptomycin.]—*Mh. Tierheilk.* **8**, 29-34. **2518**

Streptomycin, in dosage ranging from 300 mg. to 1.2 g., was injected i/m into 10

fowls with chronic *S. pullorum* infection. Agglutination titres fell but subsequently rose again. Bacteriological examination revealed no salmonella in 3 birds which had been treated twice.—M.G.G.

MITROVIC, M. (1956). **First report of paratyphoid infection in turkey poults due to *Salmonella reading*.**—*Poult. Sci.* **35**, 171-174. [Author's summary modified.] **2519**

An outbreak involving 150 turkey poults with a mortality of 66% is described. Aetiology and resistance of turkey poults and chicks to *S. reading*, with probable egg-borne transmission are described and discussed.

DĄBROWSKI, T. & GÓRECZNY, E. (1956). Salmonelozy ptactwa wodnego w kazuistyce W.Z.H.W. [*Salmonella* infection in ducks and geese.]—*Méd. vét., Varsovie*. **12**, 145-147. [In Polish.] **2520**

An account of 3 outbreaks of *S. typhimurium* infection in ducks and goslings. To detect carriers the authors recommend bacteriological examination of droppings and the blood agglutination test.—M. GITTER.

ALESSANDRO, A. (1956). Gli effetti della incubazione a 56°C. nelle prove di agglutinazione per la brucellosi bovina. [The effect of incubation at 56°C. on the agglutination reaction in bovine brucellosis.]—*Zooprofilassi*. **11**, 3-9. [English and French summaries.] **2521**

There was a reduction in the agglutination titre of serum on incubation at 56°C. for 18 hours as compared with that at 37°C. for 24 hours. This was observed in: 35.7% of naturally infected animals which had never been vaccinated; 65.5% of animals after several vaccinations with Strain 19; and 94.1% of animals, from non-infected premises, after a single vaccination with Strain 19.

—T.E.G.R.

LOKTEVA, F. P. (1955). [Diagnosis of bovine brucellosis by the ophthalmic (conjunctival) test.]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1951, pp. 65-75. [In Russian.] **2522**

L. tested 6,758 animals with the allergic ophthalmic test for brucellosis. These included healthy and tuberculous controls, animals in isolation units, and in every stage of infection. The eye test is specific. It becomes positive simultaneously with the complement-fixation test and remains positive longer than any serological test. The reaction is not always clear-cut the first time, and the test should be

repeated after 3-6 days, when the eye has become sensitized after the first test. The results of serological tests are not influenced by the eye test and a healthy animal remains negative to serological tests even after repeated eye tests. Clearance of a herd from infection is much more rapid if animals which give a positive eye test, even though they are negative serologically, are isolated and treated as infective.—A. MAYR-HARTING.

TRILENKO, P. A. (1955). [**The slow complement-fixation test and the ring test in brucellosis.**]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1951. pp. 99-105. [In Russian.] **2523**

The slow complement-fixation test is carried out by allowing 18-20 hours at 0° to 4°C. for the fixation. [See also *V.B.* **26**, 1896.] It was tested in experimentally-infected rabbits and in cows, and was found to become positive earlier than other tests. It can also be used to test for the presence of brucella antigen in the stomach of the aborted foetus. The uses and advantages of the ring test in milk are discussed.

—A. MAYR-HARTING.

BORODULINA, N. A. (1955). [**Changes in the peripheral nervous system in brucellosis.**]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1951. pp. 58-64. [In Russian.] **2524**

Changes in the sympathetic ganglia are described. The cells are swollen and show tigrolysis, the nuclei are swollen and undergoing lysis, and the neurofibrils can no longer be impregnated with silver. Satellite cells proliferate and form granules around the lysing ganglion cells. Exudative changes occur in the perivascular and perineural tissue. Sclerotic changes in the vessels may obliterate the lumen. Degeneration of myelin sheaths is pronounced, particularly in the sciatic nerve.

—A. MAYR-HARTING.

YUSKOVETS, M. K. (1955). [**Therapeutic-prophylactic serum in brucellosis of animals.**]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1951. pp. 232-239. [In Russian.] **2525**

From experiments in mice and g. pigs, and some trials in cattle, Y. concluded that it is possible with a hyperimmune serum to control the spread of infection and ensure a maximum of normal calving in infected herds. All the essential data regarding the experi-

ments are omitted, and nothing is said about the preparation of the serum and its characteristics.—A. MAYR-HARTING.

VYSHELESSKII, S. N. (1955). [**Scientific evaluation of the present methods for the control of brucellosis in farm animals.**]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1951. pp. 5-17. [In Russian.] **2526**

The author emphasizes the use of the allergic test in conjunction with the agglutination and complement-fixation tests for diagnosis. In sheep in the U.S.S.R., brucellosis is diagnosed almost exclusively by an allergic test. A slide agglutination test, using blood instead of serum, is a simple second method, where the c.f. test is beyond the facilities available. Allergic tests tend to remain positive for a long time after the infection has cleared up and the serological tests have become negative. A living vaccine made from *Br. abortus* Strain 19 has proved its value. A formol-killed vaccine has given less satisfactory results. Two other vaccines, a crystal-violet one and a strain of *Br. suis* "61", have been tried on an experimental scale only. No officially approved vaccine is available for sheep.—A. MAYR-HARTING.

NIKOLAEV, V. A. & REBROV, P. I. (1955). [**Vaccination in brucellosis of farm animals.**]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1951. pp. 170-177. [In Russian.] **2527**

The authors described the use of a formol-alum vaccine prepared from a weakly virulent strain of *Br. suis* ("22"), and the same strain alive, without formol. The live vaccine is more effective than the killed one; but heifers that have been vaccinated with the live vaccine should be re-vaccinated with the formol-alum vaccine before mating, to ensure optimal immunity. An alum vaccine prepared from another strain ("64"), which seems suitable for both adult and young animals, is being tested.—A. MAYR-HARTING.

TRONIN, A. A. (1955). [**Effectiveness of semi-fluid formol vaccine under laboratory and field conditions.**]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1951. pp. 156-160. [In Russian.] **2528**

This is a report on work done with the formol-killed brucella vaccine since 1939. Before the vaccine was employed under field conditions experimental work was done on

g. pigs and mice, and cattle. Since then, thousands of cattle have been vaccinated successfully both on infected farms and in healthy herds within an infected area. Heifers in infected herds are vaccinated at the age of 5-6 months and hardly any abortions have been observed amongst them. Since 1948, progress towards freedom from brucellosis has been very rapid in the Vologod region, where the vaccine has been employed on a large scale.—A. MAYR-HARTING.

MUROMTSEV, C. N. (1955). [Problems of immunity in brucellosis of farm animals and their practical significance.]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow 1951. pp. 123-137. [In Russian.]* **2529**

This is a thorough discussion of problems of (1) diagnosis (2) specific prophylaxis (3) killed *versus* live vaccine (4) the vaccination of adult cattle on infected farms.

Simple methods like slide agglutination using fresh blood instead of serum, and the allergic eye test, deserve more attention. The study of the differences between immunity reactions due to natural infection and those due to vaccination is only in its beginning. Intradermal vaccination seems to produce immunity without causing the appearance of agglutinins in the serum. Allergic tests for diagnosis should not be made with abortin which contains the bacterial bodies but with a purified allergen which is less likely to cause antibodies to appear in the serum.

Dogs, cats and fowls may be infected, and rats and mice are very susceptible to *Br. melitensis*.

Many workers believe that immunity lasts only as long as the presence of the organisms in the body. M. believes that non-sterile immunity merges into a state of sterile immunity, and that both killed and live vaccines have their values. Four strains are in use in the U.S.S.R. for living vaccines; of these, Strain 19 is the most widely used. It is harmless for young animals, but there is a risk in vaccinating adults with it. The killed vaccine on the other hand, is safe; vaccination with it may be repeated annually, and it is particularly useful when a valuable herd is threatened with introduction of brucellosis.

The use of vaccine on sheep farms is discussed, with interesting examples. The limited lambing season simplifies the application of the vaccine.—A. MAYR-HARTING.

CHERNYSHEVA, M. I. (1955). [Role of the reticulo-endothelial system in immunity to brucellosis.]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow 1951. pp. 138-151. [In Russian.]* **2530**

The reaction of the reticulo-endothelial system was studied by cytological methods (1) following the introduction of brucella antigens of different virulence and (2) in connexion with immunity. When a weakly virulent strain (19) is injected, the reaction of the r.e.s. is stronger and more rapid than after injection of a fully virulent strain. The reaction is particularly pronounced in the bone marrow. An inactivated culture yields a weak reaction only. The immunity of the animal depends on the reaction of the r.e.s. Challenge of vaccinated g. pigs with a virulent culture showed that those animals vaccinated with the living Strain 19 responded rapidly with a marked reaction of the r.e.s. and possessed 100% immunity. Those vaccinated with killed vaccine had a weaker response and only 55% of the animals were immune.—A. MAYR-HARTING.

TERENTEV, F. A., STEFANOVA, E. P. IVANOV, B. G., TEVOSOV, A. M. & MIKHAILOVA, I. F. (1955). [Immunization of g. pigs and sheep with the inactivated brucella vaccine of the All-Union Institute for Experimental Veterinary Science ("VIEV").]—*Trud. XXXIV Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow 1951. pp. 219-227 [In Russian.]* **2531**

The authors have applied to brucellosis the principles worked out during their work with anthrax. Their main point is that immunity depends on an adequate stimulation of the nervous system, and this is provided by tissue reaction. This is as important as the choice and preparation of the antigen, and some vaccines have been failures because this aspect has been neglected. Formol vaccines have good immunizing properties if adjuvants are added to help the tissue reaction. The adjuvants found most satisfactory were (1) a mixture of saponin and agar and (2) aluminium hydroxide.—A. MAYR-HARTING.

DOLEŻAL, M., LUTYŃSKI, R. & WIŚNIEWSKI, J. (1956). Badania owiec na brucelozę w podhalańskim ośrodku wypasowym. [Examination of sheep for brucellosis.]—*Méd. vét., Varsovie. 12, 135-139. [In Polish.]* **2532**

Following reports of outbreaks of *Br. melitensis* in goats and sheep in Czecho-

slovakia, the authors examined milk and blood samples of 2,638 hill sheep in the Carpathian mountains. The ring test and the tube agglutination tests on whey and blood yielded only negative results.—M. GITTER.

KOZŁOWSKI, F. (1956). Pożywka wybiórcza do wyosabniania pałeczek brucelli z materiałów zanieczyszczonych. [A selective medium for brucella.]—*Méd. vét., Varsovie*. **12**, 139-142. [In Polish. English and Russian summaries.] **2533**

A selective medium incorporating 3% agar, 5% horse serum, 1% glucose, 1:200,000 gentian violet and 1:100,000 malachite green was found very useful for primary isolation of brucella strains from contaminated material.—M. GITTER.

ERTÜRK, O. (1954). *Br. abortus* S.19 aşısının insanı infekte etme kabiliyeti. [Infection in man with Strain 19.]—*Vet. Fak. Derg.* **2**, 176-182. [In Turkish. Abst. from English summary.] **2534**

Infection with *Brucella abortus* Strain 19 was diagnosed serologically and bacteriologically in a human subject.—T.E.G.R.

RENOUX, G., ALTON, G. G. & MAHAFFEY, L. W. (1956). Études sur la Brucellose ovine et caprine. V. Effet des injections intradermiques de mélitine sur les chèvres et les brebis artificiellement infectées par *Br. melitensis*. [Intradermal test with melitin in sheep and goats.]—*Arch. Inst. Pasteur Tunis*. **33**, 19-31. **2535**

The intradermal injection of 0.1 ml. of melitin into sheep and goats recently infected with *Br. melitensis* had no significant effect on the level of anti-brucella agglutinins.

—I. W. JENNINGS.

RENOUX, G., ALTON, G. & MAHAFFEY, L. W. (1956). Études sur la Brucellose ovine et caprine. VI. Réactions sérologiques dans le sang de brebis récemment infectées par *Br. melitensis*. [Serological tests in sheep artificially infected with *Br. melitensis*.]—*Arch. Inst. Pasteur Tunis*. **33**, 33-41. **2536**

In the agglutination test for *Br. melitensis* infection in sheep, a positive diagnosis may be based on a titre of 1:160 or over. On the other hand, sheep definitely infected may give a quite low titre, and even this may be fleeting. The zone phenomenon is less common in sheep sera than in the serum of goats. Blocking antibodies, inhibiting the brucella agglutination test, may be present in both infected and in-

contact (non-infected) animals. The combination of a positive agglutination test and the presence of blocking antibodies in one serum increases the likelihood of the presence of infection in that animal.—I. W. JENNINGS.

LAFFENÊTRE, H. & CARRÈRE, L. (1956). Etat actuel de la vaccination contre les brucelloses ovines et caprines. [Immunization of sheep and goats against brucellosis.]—*Rev. Path. gen.* **56**, 104-116. **2537**

In sheep and goats the use of live vaccines is considered dangerous, whilst killed vaccines fail to immunize. The synergic action of an avirulent live strain and the antigenic components of brucellae was, therefore, investigated. For this purpose smooth type *Brucella abortus* Strain 112 was used in combination with: (a) a gluco-lipid extract of a highly virulent culture of *Br. melitensis*, (b) a formalized culture of a highly virulent strain. The degree of protection conferred was 93 and 97% respectively. Experiments with the formalized vaccine are being carried out to determine its efficacy under natural conditions, the duration of immunity and the production of vaccinal agglutinins.—T.E.G.R.

GODGLÜCK, G. (1955). Experimentelle Untersuchungen über die serologische Diagnostik der Schweinebrucellose. [Experiments on the serological diagnosis of porcine brucellosis.]—*Zbl. Bakt. I.* (Orig.) **164**, 99-102. **2538**

The agglutination test and the Sachweh flocculation test were suitable for the diagnosis of acute *Br. suis* infection. The c.f. test and the intradermal test using a *Brucella* polysaccharide were more reliable in chronic infections.—R.M.

DRUETT, H. A., HENDERSON, D. W. & PEACOCK, S. (1956). Studies on respiratory infection. III. Experiments with *Brucella suis*.—*J. Hyg., Camb.* **54**, 49-57. [Authors' summary modified.] **2539**

Br. suis was dispersed in airborne particles of various sizes from single organisms to 12 μ in diameter. Infectivity for g. pigs decreased six hundred fold with increasing particle size within this range. It is suggested that this was due to the ability of *Br. suis* to multiply rapidly on the surface of the lower respiratory tract.

WOODWARD, J. M. & MAYHEW, M. W. (1956). The host-parasite relationship in tularemia. III. The influence of *Pasteurella tularensis* on enzymes involved in amino acid metabolism

in tissues of white rats. — *J. Bact.* **71**, 270-273. **2540**

The amount of D-amino-acid oxidase in the liver and kidneys of rats infected with *Brucella tularensis* was less than that of normal rats. There was no difference in transaminase activity.—R.M.

FENNESTAD, K. L. (1956). Om leptospiroser hos vore husdyr. [*Leptospirosis in domestic animals.*]—*Nord. VetMed.* **8**, 325-347. [In Danish. English and German summaries. Abst. from English summary.] **2541**

Investigations since 1954 have revealed serological evidence of *Leptospira* infection in 8% of Danish cattle. It is suggested that the field mouse, *Apodemus agrarius*, is the natural host of *L. pomona* in Denmark.—M.G.G.

VAN DER HOEDEN, J. (1956). *Leptospirosis canicularis* in pigs and its probable transfer to human beings. — *J. infect. Dis.* **93**, 33-38. **2542**

After discussing the literature on the incidence of *Leptospira canicola* infection in man and animals, H. described the condition in 2 herds of pigs in Israel. In the first herd there were no symptoms, but P.M. examination of the kidneys of 2 pigs revealed nephritis; the second outbreak was complicated by *Salmonella cholerae-suis* infection. Six out of the 14 personnel developed symptoms, and significant agglutinin titres against *L. canicola* were revealed in 2 others. It is suggested that jackals were responsible for one of the outbreaks.—M.G.G.

HERBERT, T. G. G. & HUGHES, L. E. (1956). "Black disease" (infectious necrotic hepatitis) in a heifer.—*Vet. Rec.* **68**, 223-224. **2543**

Black disease was diagnosed in a heifer on the basis of P.M. findings, presence in the liver of bacteria indistinguishable microscopically from *Clostridium oedematiens*, serum neutralization tests in g. pigs, and P.M. findings in g. pigs inoculated with a suspension of the liver.—M.G.G.

STĘPKOWSKI, S. & WOŁOSZYN, S. (1956). Enzootia bradsotu owiec w gospodarstwie "J" zespołu hodowli zarodowej "S". [*Bradsot in Poland.*]—*Méd. vét., Varsovie.* **12**, 142-145. [In Polish. English and Russian summaries.] **2544**

An outbreak of bradsot in October 1955 affected mainly 2-4-year-old ewes in good bodily condition. P.M. examination revealed tympany, hydropericardium and ascites;

enlargement, pallor and friability of the liver, with small areas of necrosis; marked congestion of the abomasal and duodenal mucosae; myocardial degeneration; enlargement and congestion of the mesenteric and mediastinal lymph nodes. *Cl. oedematiens* was recovered from the liver and muscles. The disease was controlled by keeping the ewes under cover during frosty mornings, changing to a poorer diet, and disinfection of pens and troughs.

—M. GITTER.

AKKERMANS, J. P. W. M., TERPSTRA, J. I. & VAN WAVEREN, H. G. (1956). Over de betekenis van verschillende vibriën voor de steriliteit van het rund. [*Significance of various vibrios in bovine sterility.*]—*Tijdschr. Diergeneesk.* **81**, 430-435. [In Dutch. English, French and German summaries.] **2545**

The authors divided vibrios of bovine origin into three groups according to their pathogenicity and their cultural, biochemical and morphological properties. Group I vibrios were pathogenic and were isolated from the prepuce of bulls and the genital tract of cows in outbreaks of sterility. They were catalase positive, did not form H_2S , did not form deep growth in stab culture, and only grew (in the presence of 10% CO_2) at a negative oxygen tension of 40 cm., with slight growth at a negative tension of 20 cm. They were spiral in shape.

Group II. were non-pathogenic vibrios, isolated from the genital tract of apparently normal bulls, not connected with outbreaks of sterility, and only rarely isolated from cows. They were catalase negative, formed H_2S , formed deep growth in stab culture and grew (in the presence of 10% CO_2) only at 40 cm. negative oxygen tension. They were comma-shaped.

Group III were isolated only from aborted foetuses and were not found in cases of sterility, nor in bulls. They differed from the previous groups in that they were catalase positive, formed H_2S , and grew well at normal and reduced oxygen tension in the presence of 10% CO_2 . They were spiral in shape. Out of 20 strains isolated from aborted foetuses, 15 belonged to this group and 5 to Group I.

—R.M.

MUNDT, W. (1956). Untersuchungen der Tierpathogenität von *Vibrio foetus* und *Spirillum suis* aus dem Schweinedarm an Meerschweinchen und Kaninchen. [*Pathogenicity for g.*

pigs and rabbits of *V. fetus* and *Spirillum suis*.]—*Prakt. Tierarzt*, No. 4, pp. 89-90 & 92. 2546

Single or multiple doses of *V. fetus* culture by various routes produced abortions in pregnant g. pigs and rabbits. Non-pregnant animals were unaffected, but vibrios could be isolated from the spleen and kidneys 6 days after infection. *Sp. suis* had little or no pathogenicity.—M.G.G.

DE NAVASQUEZ, S. (1956). Further studies in experimental pyelonephritis produced by various bacteria, with special reference to renal scarring as a factor in pathogenesis.—*J. Path. Bact.* 71, 27-32. [Author's summary and conclusions slightly modified.] 2547

I/v injection of *Bact. coli* and *Ps. pyocyanea* into rabbits leads to pyelonephritis only in animals with pre-existing renal scars due to previous staphylococcal infection. These scars are regarded as the cause of "intrarenal hydronephrosis", which leads to local slowing of the circulation and consequent trapping of circulating bacteria. The causal relationship between renal scarring and subsequent infection is regarded as established, both in the rabbit and in man.

KEMENES, F. (1954). Über einen Fall von Coccidioidomycose bei einem Kaninchen in Ungarn. [Coccidioidomycosis in a rabbit in Hungary.]—*Acta microbiol. hung.* 2, 191-194. [In German, Russian summary.] 2548

Coccidioides immitis was isolated from necrotic foci in the lungs, liver and spleen of an emaciated aged rabbit. The identity of the organism was confirmed by its cultural characters and by i/v and i/p inoculation of mice. This is the first record of coccidioidomycosis in Hungary.—E. G. WHITE.

VERTINSKI, K. I. (1956). [Toxic dyspepsia and dysentery in piglets.]—*Veterinariya, Moscow*. 33, No. 1, pp. 14-22. [In Russian.] 2549

"Toxic dyspepsia" of weaned and unweaned piglets resulted in the death, after 4-10 days' illness, of 25-30% of young pigs on affected farms. The symptoms were reduced appetite, increased thirst and dry yellowish faeces, often covered with mucus. It was noticed at P.M. examination that the stomach was moderately filled with partly curdled or uncoagulated milk, often with an offensive smell. Dysentery affected older piglets and lasted for 10-15 days, causing retardation in growth. The author observed in both

types of illness mycelial and rosette-like forms of a fungus, not yet isolated or identified, in histological sections of stomach, small intestine, liver, kidney and sometimes bronchial epithelium. He concluded that both syndromes should be described as blastomycotic dysentery of piglets.—R.M.

VIEU, J. -F. (1955). Intérêt de certains antibiotiques fongiques pour l'isolement rapide des levures pathogènes chez l'homme. [Use of fungous antibiotics in the rapid isolation of pathogenic fungi.]—*Ann. Inst. Pasteur*. 89, 250-253. 2550

Candida species were isolated from lesions in pure culture, using neomycin, chloramphenicol and framycetin.—M.G.G.

STENDERUP, A., BICHEL, J. & KISSMEYER-NIELSEN, F. (1956). Moniliasis treated with pentamidine.—*Lancet*. 270, 20-21. 2551

Pentamidine, injected i/m at the rate of 200 mg. once or twice daily, cured 2 human cases of *Candida albicans* infection in 12 days. In a third, seriously ill patient, the monilial infection declined, but death supervened on the 14th day of treatment.—M.G.G.

ROLLE, M. & KOLB, E. (1955). Über das Vorkommen von Hefen und hefeähnlichen Mikroorganismen im Pansen von Wiederkäuern. [Occurrence of yeasts and yeast-like micro-organisms in the rumen of ruminants.] *Zbl. Bakt. I.* (Orig.) 162, 304-309. [English, French and Russian summaries.] 2552

The authors stated that the yeasts occurred only accidentally in the rumen and they did not multiply there. In the rumen contents of sheep and goats, but not cattle, there were large numbers of an organism resembling *Selenomonas ruminantium*.—R.M.

CAMPINS, H., ZUBILLAGA, Z. C., GÓMEZ LÓPEZ, L. & DORANTE, M. (1955). Estudio de una epidemia de histoplasmosis en el Estado Lara, Venezuela. [Study of an epidemic of histoplasmosis in the State of Lara, Venezuela.]—*Gac. méd. Caracas*. 62, 85-109. [English summary.] Abst. from abst. in *Bull. Hyg., Lond.* 31, 153. [1956.] 2553

Pulmonary *Histoplasma* infection developed in 14 people who had explored a bat-infested cave. *H. capsulatum* was isolated from samples of soil in the cave, but not from a captured vampire bat.—M.G.G.

MOORE, M. (1955). Morphologic variation in tissue of the organisms of the blastomycoses

and of histoplasmosis.—*Amer. J. Path.* **31**, 1049-1063. **2554**

M. reviewed the literature and reported the following findings:—Cells of *Cryptococcus neoformans* with germ tubes similar to those seen in primary cultures of the organism were demonstrated in the liver of a patient with systemic *Cryptococcus* infection; filament formation *in vivo* by *Histoplasma capsulatum* was demonstrated in an endocardial vegetation from a patient; media containing sodium fluoride or sodium silicofluoride induced multiple budding of *Candida albicans* and *Saccharomyces cerevisiae*.—M.G.G.

WATTS, P. S. & McLEAN, S. J. (1956). *Bacteroides* infection in kangaroos. — *J. Comp. Path.* **66**, 159-162. [Authors' conclusions slightly modified.] **2555**

Lesions at the side of the maxilla in kangaroos are described which were successfully treated with penicillin and sulphapyridine. Although several bacterial species were isolated from some of the lesions, in each case an anaerobic Gram-negative rod was present. In one case the organism was closely related to the genus *Fusobacterium* whilst in the others the bacilli were provisionally identified as *Bacteroides*.

MACDONALD, J. B., SUTTON, R. M., KNOLL, M. L., MADLENER, E. M. & GRAINGER, R. M. (1956). The pathogenic components of an experimental fusospirochaetal infection. — *J. infect. Dis.* **98**, 15-20. [Authors' summary modified.] **2556**

The pathogenicity of an experimental fusospirochaetal exudate was investigated in terms of the minimum combination of organisms capable of producing typical g. pig infections. Out of 17 organisms isolated in pure culture, only 4 were required to produce typical lesions. The 4 essential organisms were 2 strains of *Bacteroides* (one of which was identified as *Bacteroides nigrescens*), a motile Gram-negative anaerobic rod and a diphtheroid. Spirochaetes, fusiforms, vibrios and anaerobic streptococci were inessential.

BREGA, A. (1956). L'idrazide dell'acido isonicotinico (I.A.I.) nella terapia dell'actinobacillosi dei bovini. [Isoniazid in the treatment of actinobacillus infection in a cow.]—*Nuova Vet.* **32**, 41-47. **2557**

After preliminary treatment with penicillin, to eliminate secondary invaders, isoniazid was administered parenterally. The

swelling diminished from the size of an apple to that of a hazel nut; it disappeared completely after a course of sodium iodide *per os*. —T.E.G.R.

HYSLOP, N. St. G. (1955). Review of progress on contagious bovine pleuropneumonia in Kenya.—*Bull. epiz. Dis. Afr.* **3**, In English: pp. 266-270. In French: pp. 333-335. **2558**

The egg-adapted Strain T.1 vaccine [V.B. **23**, 386] has been in use in East Africa since 1952. It has the advantage that it can be stored at low temp. for long periods. The latent period between vaccination and the development of immunity is about 5 weeks. A technique for the exposure of animals to aerosol infection has been evolved. Chloramphenicol has given good results in the treatment of experimentally infected animals. —M.G.G.

KNOWLES, J. R. (1955). Some aspects of control of contagious bovine pleuro-pneumonia in Nigeria. — *Bull. epiz. Dis. Afr.* **3**, In English: pp. 381-386. In French: pp. 412-417. **2559**

The disease is at present confined to the Northern Region of Nigeria. Control measures are employed according to the local prevalence of the disease. They are:— (1) slaughter of clinical cases followed by quarantine and vaccination where the disease is enzootic, (2) entire slaughter of infected herds, (3) police measures to prevent re-infection of areas freed from disease.—M.G.G.

WHITE, R. W. (1956). The preparation of experimental concentrated freeze-dried contagious bovine pleuropneumonia vaccine.—*Brit. vet. J.* **112**, 71-75. **2560**

The technique is described for mass production of a bovine contagious pleuropneumonia vaccine. Forty-eight hour serum broth cultures are concentrated centrifugally, resuspended in 50% horse serum, and vacuum freeze-dried in 0.1-ml. ampoules. The reconstituted material is mixed with 1% agar soln. immediately before injection into cattle and one ampoule contains about 100 doses. Large bacillary contaminants which grew after the centrifugalization, were diluted out at a dilution of 10⁻⁵.—A. ACKROYD.

DURUSAN, R. & DOĞUER, M. (1955). Türkiye'de kuzuların akciğerlerinden izole edilen plöro-pnömonia gurubuna dahil organizmler. [Cultivation of pleuropneumonia-like organisms from lung lesions in lambs.] — *Türk vet.*

Hekim. dern. Derg. **25**, 2217-2230. [In Turkish. Abst. from English summary.] **2561**

Pure culture of the organism isolated from the lung lesions of lambs failed to reproduce the condition in two lambs, six sheep and five goats into which it was inoculated.

—T.E.G.R.

SABBAN, M. S. (1955). **The appearance of a new disease among the chickens in Egypt simulating the so called air sac or chronic respiratory disease.**—*J. Egypt vet. med. Ass.* January. pp. 1-13. [In English.] **2562**

This report records the appearance of a disease similar to "chronic respiratory disease" in fowls imported as day-old chicks into Egypt from abroad.—D. LUKE.

FAHEY, J. E. & CRAWLEY, J. F. (1956). **Studies on chronic respiratory disease of chickens. VII. The nature of infection with the pleuropneumonia-like organisms.**—*Canad. J. comp. Med.* **20**, 7-19. [French summary.] **2563**

Evidence accumulated by the inoculation of chick embryos and chicks with pleuropneumonia-like organisms (PPLO) from cases of "chronic respiratory disease" is presented to show that PPLO produce a syndrome indistinguishable from Type II coryza described by Nelson [*V.B.* **7**, pp. 519-520; **9**, p. 293]. Chick embryo inoculation with broth cultures of PPLO resulted in increased embryo mortality and death of chicks at time of hatching. In addition mortality was greater in the first 72 hours in chicks hatched from infected eggs. PPLO caused mild coryza with ocular and nasal discharges and conjunctivitis in broiler stock, but no symptoms in older birds. Nelson's Type II coryza is caused by a "coccobacilliform" organism considered to be identical with PPLO. The authors suggest that PPLO infection of chicks be referred to as Coryza II (Nelson) or pleuro-pneumonia coryza.—A. S. GREIG.

See also absts. 2641 (relationship between infestation with *Oesophagostomum dentatum*, swine erysipelas and swine fever); 2730 (presence of salmonella in bovine and ovine carcasses with leucosis and fascioliasis); 2733 (Salmonella in bone- and fish-meal); 2752 (report, Northern Ireland); 2753 (report, New Zealand); 2755 (report, Federation of Rhodesia & Nyasaland); 2756 (book, biosynthesis of *Bact. coli*); 2757 (symposium of the Society for General Microbiology); 2758 (atlas of pathogenic fungi).

DISEASES CAUSED BY PROTOZOAN PARASITES

BAZDYREV, K. P. (1955). **[Eradication of dourine in the Stavropol region.]**—*Sborn. Rabot XXXVI Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1952. pp. 268-270. [In Russian.] **2567**

In order to eradicate dourine from dis-

SHIPKOWITZ, N. L. & CLARKE, M. K. (1955). **Thallium acetate in the diagnosis of chronic respiratory disease of chickens.**—*Science*. **122**, 969-970. **2564**

Thallium acetate, as a 5% aq. soln. added in the proportion of 0.15 ml. to 1 ml. of broth suspension of suspect tracheal scrapings, rendered isolation of the causal pleuropneumonia-like organism possible in 7 of 10 cases. Unfortunately it has the disadvantage of being toxic for embryos, causing their early death or marked stunted development.—T.E.G.R.

ADLER, H. E., YAMAMOTO, R. & EXTROM, S. F. (1956). **Control of egg-transmitted pleuropneumonia-like organisms in two hatcheries through medication of the foundation stock.**—*J. Amer. vet. med. Ass.* **128**, 313-315. [Authors' summary modified.] **2565**

It was demonstrated that pleuropneumonia-like organisms (PPLO), associated with chronic respiratory disease (CRD), were transmitted from infected hens to chicks through the eggs. Infectious bronchitis virus increased the prevalence and severity of latent CRD.

Egg transmission of PPLO was prevented by treatment of the parent stock with 25 mg. per kg. of a combination of streptomycin and dihydrostreptomycin sulphate injected i/m fortnightly, and 0.4 g. of erythromycin stearate in the drinking water for the first 5 days.

BELLOCQ, B. & LACROZE, R. (1955). **La bartonellose canine au Maroc. [Bartonella infection of dogs in Morocco.]**—*Rev. Cps vét. Armée.* **4**, 156-158. **2566**

Bartonella canis infection in dogs in Morocco generally occurs in association with leishmaniasis or piroplasmosis. Whether acute or chronic, the disease is always serious and treatment depends on the use of specific therapy directed against both organisms. Chloramphenicol appears to be the best choice for the control of *Bartonella canis*.

—I. W. JENNINGS.

tracts where 2-3 farms were affected, it was necessary to carry out 3 clinical and serological examinations of every mare going to service. Adult horses were each given a therapeutic injection of "naganin" (suramin) followed by a second inj. after 10-15 days.

During the 2 years following eradication, every horse was examined 3 times. At the beginning of 1952 there remained infected 19% of the farms in the region which were infected in 1949.—R.M.

WILLIAMSON, J. & DESOWITZ, R. S. (1956). Prophylactic activity of suramin complexes in animal trypanosomiasis.—*Nature, Lond.* 177, 1074-1075. 2568

After the discovery by Guimaraes & Lourie [*V.B.* 22, 819] of the action of a combination of suramin and pentamidine, it was demonstrated by Cosar *et al.* [*V.B.* 25, 950] that this combination possessed advantages over pentamidine alone in the treatment of trypanosomiasis in rats.

Working at Vom (Northern Nigeria), the present authors studied the prophylactic action against *T. vivax* infection in zebu cattle of combinations of suramin with quinapyramine sulphate ("antrycide"), ethidium bromide, and "berenil" [di-(aminophenyl)-triazene diacetate]. The latter combination possessed little therapeutic activity.

Suramin-quinapyramine sulphate complex, given [presumably subcutaneously] as a single dose containing 5 mg./kg. body wt. quinapyramine sulphate, protected 5 cattle for 69-91 days. Double the dose (10 mg./kg.) protected for 95-129 days, 20 mg./kg. for from 135 to more than 196 days, and 40 mg./kg. for from 162 to more than 196 days. The maximum protection afforded by quinapyramine sulphate alone at the maximum tolerated dosage of 5 mg./kg. was 39-52 days.

Similarly, a combination of suramin and ethidium bromide, at a dosage of 5 mg./kg. body wt. of ethidium bromide protected one ox for 216 days and another for more than 217 days. Double the dosage protected 3 oxen for at least 217 days. Ethidium bromide alone (5 mg./kg.) gave protection for 57-147 days.

—R.M.

KIRK, R. (1956). Studies in leishmaniasis in the Anglo-Egyptian Sudan. XII. Attempts to find a reservoir host.—*Trans. R. Soc. trop. Med. Hyg.* 50, 169-177. [Abst. from Author's summary.] 2569

Leishmania infection has been found in two horses, a monkey, and possibly in a fox, but no animal reservoir has been identified although many species have been examined. Recovered human patients may provide a

reservoir, but this is unlikely to be the complete explanation of leishmaniasis in the Republic of the Sudan.

HAJSIG, M., TOPOLNIK, E. & BENKO, V. (1956). Über die mukolytische Wirkung der *Trichomonas genitalis*. [Mucolytic action of *Trichomonas foetus*.] — *Schweiz. Arch. Tierheilk.* 98, 127-131. [English, French and Italian summaries.] 2570

Tr. foetus invaded the oestral mucus of cows *in vitro* by means of a mucolytic enzyme. It did not invade the vaginal or cervical mucus of pregnant cows.—M.G.G.

HOPPE, R., MARKOWSKI, A. & JAŚKOWSKI, L. (1956). Doświadczenia nad leczeniem buhajów zakażonych rzęśnistkiem bydlęcym. I. Skuteczność opryskiwania prącia pod ciśnieniem metodą własną. [Treatment of trichomoniasis in bulls. I.]—*Méd. vét., Varsovie.* 12, 163-164. [In Polish, English and Russian summaries.] 2571

Spraying of the exposed penis and preputial mucosa with 0.4% solution of chloramine under a pressure of 4.5 atmospheres resulted in cure in 49 out of 55 bulls after a single treatment and in 3 bulls after two applications. 45-55 litres of chloramine solution were required for one application.

—M. GITTER.

SOKOLOV, N. I. (1956). [Use of synthetic octane in trichomoniasis in cows.—*Veterinariya, Moscow.* 33, No. 3. p. 68. [In Russian.] 2572

S. claimed good results from the treatment of cows with chronic vaginitis and metritis caused by *Trichomonas foetus* by placing in the vagina for 6-8 hours a cotton-wool tampon soaked in octane spirit obtained from synthetic petroleum. Acute vaginitis was similarly treated with a mixture of 3 parts octane with 1 part sunflower oil. Treatment was repeated daily for 6 days; trichomonads disappeared after 2 or 3 treatments. Signs of uneasiness, observed in some cows after introduction of the tampon, lasted for 10-15 min.

—R.M.

MCGUIRE, W. C. (1955). Blood-induced blackhead.—*J. Parasit.* 41, No. 6, Sect. 2. (Suppl.) p. 14. 2573

Blood from the caecal veins of diseased turkeys was transfused into the wing vein of susceptible turkeys. Typical blackhead lesions occurred in the liver without involvement of the gastro-intestinal tract. Atypical lesions

occurred in the lungs, kidneys, heart and proventriculus. This syndrome was not observed when heart or wing vein blood was transfused. It is concluded that the infective protozoa are found only in the portal circulation.

—T.E.G.R.

PETROV, V. A. (1956). [Ammonium salts in the treatment and prevention of bovine coccidiosis.]—*Veterinariya, Moscow*. **33**, No. 2. pp. 30-32. [In Russian.] **2574**

Oocysts are killed in alkaline solutions of ammonium chloride or ammonium sulphate. In the alkaline colon the salts act similarly, and calves are rapidly cured of coccidiosis after one or two doses. Ammonium sulphate is less irritant than the chloride. Care must be taken to prevent the ammonium salt being decomposed by alkali before it reaches the colon. It is therefore given in milk or in lactic acid. No toxic effect has been observed, apart from a transient leucocytosis.

—A. MAYR-HARTING.

HAMMOND, D. M., SHUPE, J. LE G., JOHNSON, A. E., THORNE, J. & FITZGERALD, P. R. (1955). Sulfaquinoxaline and sulfamerazine in the treatment of experimental infections with *Eimeria bovis* in calves. — *J. Parasit.* **41**, No. 6, Sect. 2. (Suppl.) p. 18. **2575**

Some response was elicited when the drugs were administered 13-17 days after experimental infestation.—T.E.G.R.

SCHOLTYSECK, E. (1955). Therapieversuche und histologische Untersuchungen zur Geflügelcoccidiose. I. Über die Anwendung des Sulfonamidgemisches "Protocid" (Schering) zur Bekämpfung der Geflügelcoccidiose. [Treatment and histology of avian coccidiosis. I. Use of a combination of two sulphonamides.]—*Zbl. Bakt.* I (Orig.) **163**, 410-424. [English, French and Russian summaries.] **2576**

"Protocid", a mixture of sulphamerazine and *p*-aminobenzenesulphonamido-ethyl-thio-diazol, was not toxic for fowls when added to the food at a conc. of 0.1%. It did not prevent the occurrence of caecal coccidiosis, but favourably influenced the course of the disease. Histological examination of caeca revealed that the drug affected the gametocytes but not the schizonts.—R.M.

VISHKER, A. S. (1956). [Chemoprophylactic action of hemospuridin in piroplasmiasis in horses.]—*Veterinariya, Moscow*. **33**, No. 3. pp. 34-36. [In Russian.] **2577**

On 8 collective farms in the Tatar A.S.S.R., which had reported a total of 90 cases of *Babesia* infection in horses during the previous year, 1,382 horses were each given a prophylactic inj. of hemospuridin (an organic copper ester of benzhydrol) in May, as soon as the first cases appeared. The dosage of 2% aqueous soln. varied from 3.5-5 ml. for adults to 0.75-1.5 ml. for unweaned foals. The temp. of each horse was recorded daily, and blood smears were examined if it was raised. No *Babesia* infection occurred during the 10 days after injection. The authors concluded that this prophylactic treatment, repeated up to 4 times during the disease season, was more effective, convenient and economical than the weekly dusting of horses with B.H.C. powder.—R.M.

LI, P. N. (1956). [Identification of *Babesia ovis* in *Rhipicephalus bursa* outside the season for *Babesia* infection.]—*Veterinariya, Moscow*. **33**, No. 3. pp. 36-38. [In Russian.] **2578**

L. found bodies 9-10 μ long and 3-4 μ wide, stated to be developmental forms of *B. ovis*, in the subcuticular layer of nymphs of *R. bursa* in autumn, 7-8 months after the season for *Babesia* infection.—R.M.

BEVERIDGE, E. (1956). The activity of phenanthridine compounds against *Babesia rodhaini* in mice. [With a note on some clinical trials by Hignett, P. G.]—*Ann. trop. Med. Parasit.* **50**, 85-91. [Author's summary modified.] **2579**

The activity was tested of over 200 compounds against *B. rodhaini* infection in mice. The general requirements of chemical structure for babesicidal activity were very similar to those for trypanocidal activity.

BUGYAKI, L. (1956). Valeur protectrice et curative de la "Babesin" et du "Yatren" dans l'East Coast Fever des bovidés adultes. [Protective and curative value of "babesin" and "yatren" in East Coast fever of adult cattle.]—*Bull. agric. Congo belge*. **47**, 113-121. [In French. Flemish summary.] **2580**

Neither babesin [composition not given] nor yatren had any protective or curative effect on East Coast fever experimentally induced in 17 cattle. In 6 of the animals the course of the disease was peracute.—M.G.G.

POROKHOV, F. F. (1956). [Combined therapy of *Theileria* infection in cattle.]—*Veterinar-*

iya, Moscow. 33, No. 3. pp. 30-34. [In Russian.]. 2581

P. claimed 80-85% recoveries in 105 cattle with *Theileria* infection, treated with a chemotherapeutic agent combined with analgesics and sedatives. The results were better than those obtained by the use of a chemotherapeutic agent alone. For example, 5 g. quinuronium sulphate was combined with 1 g. "promedol" (a drug of unstated composition, having an action similar to that of morphine) in 100 ml. water. This soln. was administered s/c or i/m at a dosage of 1.5-2 ml. per 100 kg. body wt. and at the same time an aqueous soln. of sodium bromide and procaine was given i/v. The treatment was given once daily for 2-4 days. Some cattle were given "aminoacrichin" (a 7-aminoacridine derivative) instead of quinuronium, with similar results.—R.M.

ROSSI, P., GUISLAIN, P. & BUSSIÉRAS, J. (1955). Un nouveau foyer d'anaplasmose bovine en Saône-et-Loire. [New outbreak of bovine anaplasmosis in the department of Saône-et-Loire, France.]-*Bull. Soc. Sci. vét., Lyon*. 57, 121-129. 2582

Anaplasmosis was diagnosed in a herd of 25 cattle of which 9 were clinically affected. *Anaplasma marginale* and *A. centrale*, in the proportion of 82:18 were present in the r.b.c. *Ixodes ricinus* and *Rhipicephalus sanguineus* were found on the animals. One of the affected animals died before treatment was administered. The others recovered after treatment with gonacrine [acriflavine] intravenously, and lomidine [diamino-diphenoxypentane] intramuscularly. Trypoxyl [atoxyl] was also administered to two in which the infection was very severe.—T.E.G.R.

MOMBERG-JØRGENSEN, H. C. (1956). Toxoplasmosse hos svinet. [Toxoplasmosis in pigs.]-*Nord. VetMed.* 8, 227-238. [In Danish. English and German summaries. English summary modified.] 2583

An outbreak of toxoplasmosis in a herd of pigs is described, during which a litter of 11 piglets became affected when one week old; 6 died in the course of a few days with respiratory symptoms (especially dyspnoea). P.M. findings were characterized by fibrinous pneumonia, necrotizing lymphadenitis, focal necrotizing-ulcerous enteritis and focal hepatitis, nephritis and splenitis. Toxoplasms

were demonstrated in all the affected organs, and typical infections in mice were produced. Serological examination yielded only weak reactions in most cases, and only a few sera reached a titre of 1:250 in the Sabin-Feldman dye test. A retrospective histological diagnosis revealed toxoplasmosis in 3 pigs, 18 days old, in which the P.M. findings closely resembled those reported in this paper.

MORRIS, J. A., AULISIO, C. G. & McCOWN, J. (1956). Serological evidence of toxoplasmosis in animals. — *J. infect. Dis.* 98, 52-54. [Authors' summary modified.] 2584

The allantoic fluid of toxoplasma-infected chick embryos contained substances which fixed complement specifically with toxoplasma immune serum. Further, it appeared from serological data that toxoplasma infection occurs in an appreciable number of dogs and wild rabbits in the Middle Atlantic states of the U.S.A.

ROGER, F., GIROUD, P. & ROGER, A. (1955). Remarques importantes sur la fixation du complément dans la toxoplasmosse humaine ou expérimentale. Supériorité de l'antigène pulmonaire souris sur les antigènes: péritonéal souris, pulmonaire lapin ou chorio-allantoïdien. [Observations on the complement-fixation test for human and experimental *Toxoplasma* infection.]-*Bull. Soc. Pat. exot.* 48, 807-810. 2585

In a study of complement fixation in toxoplasma infection in the human subject or in experimental animals, antigen obtained from mouse lung was found to be superior to that obtained from peritoneal exudate of the mouse, from rabbit lung or from chorio-allantoic membrane of the chick embryo.—T.E.G.R.

PUSAT, M. M. (1955). Memleketimizde ilk defa tesbit edilen *Aegyptianella pullorum* vak'ası. [Aegyptianella pullorum infection in ducks.]-*Türk vet. Hekim. dern. Derg.* 25, 2487-2490. [In Turkish. Abst. from English summary.] 2586

An outbreak of *Aegyptianella pullorum* infection in ducks is reported. The disease was characterized by sudden death. Enlargement of the spleen was the outstanding post-mortem finding. There was no further incidence after eradication of *Argas persicus* ticks. —T.E.G.R.

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

RAMON, G. (1956). La situation sanitaire en matière de fièvre aphteuse dans divers pays d'Europe, au cours de l'année 1955. [**Foot and mouth disease in some European countries during 1955.**—*C. R. Acad. Sci., Paris.* **242**, 1937-1941. **2587**]

R. gave figures for the number of outbreaks of F. & M. disease in ten European countries during 1955. He contrasted the low incidence in countries where infected beasts were slaughtered, with the high incidence in countries where vaccination was the main control measure.—R.M.

NARDELLI, L. & PERINI, E. (1956). Titolazione di infettività del virus aftoso. (Rivista sintetica ed esperienze personali). [**Titration of the foot and mouth disease virus.**—*Vet. ital.* **7**, 321-344. **2588**]

In a comparison of two methods of titrating F. & M. disease virus, it was found that tests on epithelial cultures were as good as, or better than, the mouse tests in the case of virus coming from cultures, but with virus of direct bovine origin, the mouse test was the more sensitive of the two.—I. W. JENNINGS.

SHULYUMOVA, E. S., KUZMIN, A. F. & FEDKO, P. A. (1956). [**Effect of tissue therapy on the lactation of cows recovering from foot and mouth disease.**—*Veterinariya, Moscow.* **33**, No. 2. pp. 27-30. [In Russian.] **2589**]

The authors carried out an experiment with 12 artificially and 6 naturally infected cows. Half were treated with 7 injections of tissue (testes) suspensions subcutaneously at 2-day intervals. In all animals, treated and untreated, the milk yield went down to 62-75%. It rose again after 10-14 days; this rise was maintained in the treated animals until, 3-4 weeks after infection, they produced more than the original amount of milk. In the untreated animals the rise was only temporary, and production went down again and remained low for a long time.

—A. MAYR-HARTING.

BACHRACH, H. L., CALLIS, J. J. & HESS, W. R. (1955). **The growth and cytopathogenicity of vesicular stomatitis virus in tissue culture.**—*J. Immunol.* **75**, 186-191. **2590**

The virus of vesicular stomatitis was grown in roller-tube tissue cultures of bovine tongue epithelium or g. pig kidney. Destruction of tissue cells commenced 15-48 hours after inoculation of the virus.—R.M.

AMITROV, V. K. (1956). [**Foxes as transmitters of rabies in the Penza region.**—*Veterinariya, Moscow.* **33**, No. 2. pp. 33-34. [In Russian.] **2591**]

In 1952-53 rabies was prevalent in foxes in the Penza district and in several instances they entered cowsheds and bit cows and calves. If no Negri bodies are found in the brain of suspected animals, the author inoculates rabbits through the foramen atlanto-occipitale; this is simpler than subdural injection and yields more positive results than intramuscular injection.—A. MAYR-HARTING.

STAMM, D. D., KISSLING, R. E. & EIDSON, M. E. (1956). **Experimental rabies infection in insectivorous bats.**—*J. infect. Dis.* **98**, 10-14. [Authors' summary modified.] **2592**

Bats were readily infected by intramuscular and intracerebral inoculation.

Symptoms were inappetence, weakness, tremors, irritability, muscular spasms, paralysis, biting at the site of inoculation, and aggressiveness. Virus isolated from naturally infected bats had an unusually long incubation period in mice and an even longer incubation period in bats. Rabies virus was repeatedly recovered from the saliva of one bat during the 2 weeks before death. The implications of these findings were discussed.

THIÉRY, G. (1956). Premiers résultats de l'étude de l'action de diverses hormones et du nucléinate de sodium sur le virus rabique. [**Action of hormones and sodium nucleate on rabies virus.**—*C. R. Acad. Sci., Paris.* **242**, 945-947. **2593**]

Oestrogens stimulate the virus indirectly by modifying the constitution of the infected animal. Progesterone has the opposite action. The direct action of nucleic acid causes a transformation of the rabies virus and, possibly, of other viruses which produce inclusion bodies similar to Negri bodies in chemical composition.—T.E.G.R.

SHEN, R. M., ORLOVA, N. N., TUREVICH, S. T., LIKHACHEV, N. V. & NAZAROV, V. P. (1956). [**Dried anti-rabies formol vaccine with adjuvant.**—*Veterinariya, Moscow.* **33**, No. 1. pp. 30-32. [In Russian.] **2594**]

The authors recommended for use in farm animals a dried formolized vaccine prepared from sheep-adapted fixed rabies virus, containing calcium phosphate as adjuvant.

—R.M.

ANON. (1956). **Rabies fatal to Texas entomologist.**—*J. Amer. vet. med. Ass.* **128**, 356. 2595

A note on a typical fatal infection in a worker studying rabies in bats. Diagnosis was confirmed by animal inoculation. Accidental infection through a dermatitis lesion was suspected.—M.G.G.

SUZUKI, S., FUWA, A., FUZII, R. & KURIMOTO, U. (1955). **Individualities of domestic fowls in the haemagglutination of vaccinia virus.**—*Zbl. Bakt. I.* (Orig.) **162**, 405-407. [In English, German, French and Russian summaries.] 2596

Vaccinia virus agglutinated the r.b.c. of White Leghorn fowls and White Leghorn × Nagoya Cochins crosses, but not those of Plymouth Rock fowls or of crosses with this breed.—R.M.

BERGER, K. (1955). **Infektionsversuche mit dem Virus des Melkerknotens. [Infection experiments with the virus of milker's nodules.]**—*Zbl. Bakt. I.* (Orig.) **162**, 363-372. [English, French and Russian summaries.] 2597

B. set up a pox-like disease in cattle by inoculating material from 2 human cases of milker's nodules. Calves previously immunized against cow pox were infected with this agent, and cattle with a pox-like disease of the udder apparently responsible for the milker's nodules were susceptible to cow pox. B. concluded that the agent was not an attenuated cow-pox virus.—R.M.

ARTAN, M., GÜLEY, M. & DOĞUER, M. (1955). **Türkiye'de koyunlardan izole edilen pleuropneumoni gurubuna dahil patogen mikroorganizmler. [Abortion in sheep following immunization with contaminated sheep pox vaccine.]**—*Türk vet. Hekim. dern. Derg.* **25**, 2463-2477. [In Turkish, English and German summaries. Abst. from English summary.] 2598

Abortions in sheep after vaccination with sheep pox vaccine were attributed to contamination of the vaccine with pleuropneumonia-like organisms which were isolated from the aborted foetuses and from the vaccine used.—T.E.G.R.

GINSBERG, H. S. (1955). **Suppression of influenza viral pneumonia in mice by the non-specific action of xerosin.**—*J. Immunol.* **75**, 430-440. 2599

It is considered that xerosin prevents or suppresses pulmonary lesions by a non-specific

action which inhibits exudative processes—oedema, haemorrhage and cellular infiltration.—T.E.G.R.

CERRUTI, C. G. (1956). **Su di una encefalomyelitis del bufalotto di probabile origine virale (Nota preventiva). [An encephalomyelitis of young buffaloes, possibly caused by a virus (Preliminary note).]**—*Vet. ital.* **7**, 205-213. [English, French and German summaries.] 2600

C. reports the presence in Salerno and Caserta of an encephalomyelitis affecting buffaloes about a year old. The disease is transmissible to rabbits by intracerebral and subdural inoculation and is believed to be caused by a neurotropic ultravirus.—I. W. JENNINGS.

RANDALL, C. C. (1955). **Susceptibility in vitro of adult horse tissue to equine abortion virus. Previously undescribed lesions.**—*Amer. J. Path.* **31**, 1165-1169. 2601

Serial propagation of equine abortion virus in the epithelium of the fallopian tube of the pregnant mare was demonstrated both by histological and serological findings. Intracellular inclusion bodies were also found in tissue cultures of lung, spleen and amniotic membrane.—M.G.G.

HAWLEY, G. E., SACCHI, E. M. & BUNN, C. (1956). **Intrathoracic and intratracheal treatment of infectious bovine rhinotracheitis.**—*Vet. Med.* **51**, 56-60. 2602

The authors claimed good results from the treatment of infectious bovine rhinotracheitis [*V.B.* **26**, 221], by intratracheal or intrathoracic injection of oxytetracycline soln. For the former 10-20 g. of the antibiotic were dissolved in 100 ml. of a mixture of equal parts water and glycerol. Each animal was given 5-40 ml. of this soln., and treatment was repeated on the following day. The addition of 50,000-200,000 units crystalline trypsin or pancreatic dornase to each inj. was said to loosen and favour the expulsion of necrotic debris. For intrathoracic inj., 20-40 ml. of a soln. containing 1 g. of the antibiotic in 80 ml. sterile saline soln. was given daily for 2-4 days. The dose was divided into two, one half being injected into each side of the thoracic cavity.

A table shows the clinical differentiation of this disease from mucosal disease, calf diphtheria, rinderpest, bovine contagious pleuro-pneumonia, shipping fever, virus diarrhoea and bovine malignant catarrh. [See also *V.B.* **26**, 2289.]—R.M.

KENDRICK, J. W., MCKERCHER, D. G. & SAITO, J. (1956). Preliminary report of studies on a catarrhal vaginitis of cattle.—*J. Amer. vet. med. Ass.* **128**, 357-361. 2603

Symptoms of this disease, which has been observed in cattle in California, are congestion of the vagina and cervix, vaginal discharge, and lowered fertility. The course is from several days to 3 months. The authors isolated a filtrable agent which was readily adapted to serial passage in chick embryos, producing high mortality. It was not readily adaptable to the brains of young mice.—M.G.G.

KIPPS, A. (1956). Complement fixation with antigens prepared from bluetongue virus-infected mouse brains.—*J. Hyg., Camb.* **54**, 79-88. [Author's summary modified.] 2604

Six strains of bluetongue virus were compared by cross c.f. tests on Perspex sheets according to the method of Fulton & Dumbell [*V.B.* **20**, 363] with antigens derived from crude saline extracts, and acetone and ether extracts, of infected baby mouse brains. Only minor differences were encountered with the former and no significant differences with the latter. The reasons for this are discussed. In neutralization tests important differences were demonstrated between strains. There was evidence that the soluble antigen is composed of particles of varying size, that the smaller particles are responsible for the marked overlapping in the c.f. tests, and that increasing complexity associated with increasing particle size may be concerned with increasing serological specificity.

SCHWARTE, L. H. (1956). Investigations on current hog cholera problems.—*J. Amer. vet. med. Ass.* **128**, 352-354. 2605

Swine fever virus was recovered from 19 out of 26 herds of pigs in which post-vaccination trouble had occurred. Most of the strains were of low pathogenicity. The findings were discussed.—M.G.G.

WAGENER, K., MITSCHERLICH, E. & GLÄSSER, H., JR. (1956). Untersuchungen über die Ätiologie einer in Norddeutschland auftretenden infektiösen Gastroenteritis bei Schweinen (Oldenburger Schweinekrankheit). Aetiology of an infectious porcine gastro-enteritis ("Oldenburg pig disease") in North Germany.—*Berl. Münch. tierärztl. Wschr.* **69**, 121-125. [English summary.] 2606

Investigation of an outbreak in 1954 showed that this disease was transmissible to healthy pigs by contact, by oral administration

of infected organ material and by injection of spleen filtrates. Experimentally infected pigs were protected by swine fever immune serum, and were then immune to injections of virulent swine fever virus. In investigations in 1955 the disease could not be transmitted to healthy pigs by contact or by oral administration. S/c injection of organ material from the outbreak in 1954 produced severe symptoms in 2 pigs affected during the 1955 outbreaks, from which they recovered, whereas control pigs died from typical swine fever. The disease was considered to be caused by an attenuated swine fever virus.—M.G.G.

DMITRIEV, A. I. & KITAEVICH, E. I. (1956). [Aetiology of bronchopneumonia in pigs following inoculation of swine fever crystal violet vaccine.]—*Veterinariya, Moscow*. **33**, No. 3. pp. 51-52. [In Russian.] 2607

The authors concluded that bronchopneumonia observed in pigs after swine fever vaccination could result from stimulation of the cervical part of the vagus nerve and the associated ganglion nodosum by crystal violet vaccine injected into or around the nerve and ganglion. [Russian physiologists (Speranski, 1935, 1942; Chernukh, 1952) have previously demonstrated that stimulation of the vagus can produce pathological changes in the lungs.] To preclude this complication it was recommended that the vaccine be injected s/c in the dorsal third of the anterior part of the neck, 10-12 cm. (in piglets) from the base of the ear, or in other parts of the body, such as the hip or thigh.—R.M.

BETTS, A. O. & CAMPBELL, R. C. (1956). The action of antibiotics and sulphamezathine on the causal agent of virus pneumonia of pigs.—*J. comp. Path.* **66**, 89-101. [Authors' conclusions modified.] 2608

The authors studied the effects of sulphadimidine, penicillin, streptomycin, chloramphenicol, chlortetracycline, oxytetracycline and tetracycline on the causal agent of virus pneumonia of pigs. Infection was prevented by chlortetracycline and oxytetracycline, but neither antibiotic had any effect upon established lesions. Streptomycin appeared to have some slight protective action.

RISEK, W. H. (1956). Observations on canine distemper.—*Vet. Med.* **51**, 169-171 & 182. 2609

From personal experience in veterinary practice, R. claimed that the immunity pro-

duced by vaccination against dog distemper is of short duration; frequent challenge or vaccination is necessary to maintain a high degree of immunity.—M.G.G.

GILLESPIE, J. H. & RICKARD, C. G. (1956).

Encephalitis in dogs produced by distemper virus.—*Amer. J. vet. Res.* **17**, 103-108. **2610**

A strain of distemper virus, designated Snyder Hill, was obtained by serial intracerebral transfer in dogs. This virus causes encephalitis in dogs 6-16 days after intracerebral inoculation. Dogs that have recovered from the catarrhal form of distemper or have been inoculated with egg-adapted virus have a complete immunity against this strain.

—T.E.G.R.

MOMBERG-JØRGENSEN, H. C. (1956). Toxoplasmosen i forbindelse med hvalpesygge hos minken. [Mixed infection with distemper and *Toxoplasma* in mink.]—*Nord. VetMed.* **8**, 239-242. [In Danish. English and German summaries. English summary modified.] **2611**

Investigations on a mink farm of an outbreak of distemper revealed in some animals simultaneous infections with distemper and *Toxoplasma*. Particularly prominent P.M. findings were lesions of the lungs. These were partly diffuse pneumonia, and partly multiple, nodular, pneumonic processes. Toxoplasms were demonstrated histologically and by inoculation into mice.

MANSI, W. (1956). **Dual vaccination of dogs against the canine distemper complex and canine virus hepatitis.**—*J. comp. Path.* **66**, 136-144. [Author's conclusions modified.] **2612**

The successful results of dual vaccination against dog distemper (DCX) and canine virus hepatitis (HCC) are reported. The HCC vaccine consisted of the fully virulent canine hepatitis virus, introduced by conjunctival instillation. The DCX vaccine consisted of egg-adapted distemper virus, fully attenuated, administered s/c or mixed with HCC virus and instilled into the conjunctival sac. The two viruses can be freeze-dried, either separately or mixed. No interference with the efficiency of the two virus-vaccines was observed when they were administered simultaneously.

LARIN, N. M. & ORBELL, W. G. (1956). **Studies on the agent of canine virus hepatitis (Rubarth's disease). III. The properties of the**

complement-fixing antigen and its probable structure.—*J. Hyg., Camb.* **54**, 141-151.

[Authors' summary modified.] **2613**

The complement-fixing activity of canine hepatitis virus is due to particles which are estimated to measure from 70 to 105 m μ and which can probably form larger aggregates. The active particles in the original virus tissue suspension were of sizes similar to those in the purified preparations, their serological properties being identical. The chemical properties of the antigen are those of protein, probably ribonucleoprotein. The association of a high concentration of the antigen with the presence of numerous intranuclear inclusion bodies in the lesions could not be explained. It was evident, however, that the inclusion bodies are not just deposits of the serologically active material. Since they and also the antigen are probably composed of ribonucleoprotein, it is possible that they both represent stages in the formation of virus protein by a catalytic reaction from the denatured host proteinogen.

MARTIN, L. A. (1955). L'hépatite contagieuse du chien (maladie du Rubarth). Incidence possible du virus chez l'homme. [Canine virus hepatitis (Rubarth's disease). Is the infection transmissible to man?]—*Maroc méd.* **34**, 938-945. **2614**

Canine virus hepatitis is endemic in the dog population of Casablanca, where 50% of 249 dogs were positive to serological tests. Of 513 adult human beings in Casablanca and Dakar, the sera of 22% were positive to complement-fixation and neutralization tests. M. reviewed the literature: there are 47 references.—M.G.G.

I. RATCLIFF, F. N. (1955). **Review of myxomatosis in Australia, 1950-1955.**—*J. Aust. Inst. agric. Sci.* **21**, 130-133. **2615**

II. FENNER, F. (1955). **Changes in the virulence of myxoma virus associated with its natural transmission in populations of the rabbit *Oryctolagus cuniculus*.**—*Ibid.* **137-144.** **2616**

III. DAY, M. F. (1955). **Factors influencing the transmissibility of myxoma virus by mosquitoes.**—*Ibid.* **145-151.** **2617**

I. At present rabbit numbers in South Australia approach the lowest in living memory. Investigations by the Wild Life Section of the Commonwealth Scientific and Industrial Research Organization into the vectors responsible for the spread and maintenance of

myxomatosis clearly demonstrate the importance of mosquitoes, especially *Culex annulirostris* and *Anopheles annulipes*.

In reviewing the situation and prospects from the point of view of practical rabbit control R. discusses several important points, viz., the uncertainty of any prediction of the intensity of an outbreak of myxomatosis in different seasons; the accumulating evidence on the attenuation of the virus and on the fall in case-mortality; the evidence of increased genetic resistance in the rabbit; and the possibility of fluctuations in population independent of myxomatosis. He concludes that the future is uncertain and anxiety as to the continuing efficacy of myxomatosis might prove unfounded.

II. Methods of studying the virulence of strains of myxoma virus are described. There is clear evidence of the occurrence in the field of slightly attenuated strains of virus which appear better adapted than the virulent virus and thus replace it. It is also apparent that greatly attenuated strains are unlikely to replace the slightly attenuated strains. F. considers that it may not be possible until 1960 to give an accurate forecast of the ultimate place of myxomatosis in rabbit control.

III. The strains of myxoma virus so far recovered from the field are acquired and transmitted by the mosquito vector with approximately equal efficiency. The selective advantage of one strain over another appears to be dependent on the relative length of time that virus-containing lesions are exposed to biting mosquitoes. This would explain why the slightly attenuated virus strains are better adapted to field conditions than the greatly attenuated strains. Although mosquitoes carry the virus mechanically, species differ in their efficiency as vectors. These differences are probably correlated with structural differences in the mouth-parts. None of the other factors that have been studied affect the transmission of myxoma virus by mosquitoes.

—W. R. SOBEY.

SOBEY, W. R. (1955). **Changes in the innate resistance of rabbits to myxomatosis.** — *J. Aust. Inst. agric. Sci.* **21**, 135-136. **2618**

An analysis of field data, made available by Fenner and his co-workers, reveals a genetic basis for resistance to myxomatosis. It is accordingly predicted that in the areas under observation the percentage mortality will fall to 50 in 5 to 10 further epizootics, at which stage rabbits can be expected to mul-

tiple rapidly. The validity of this prediction depends on the continued prevalence of the slightly attenuated virus at present in the field.

HULL, R. N., MINNER, J. R. & SMITH, J. W. (1956). **New viral agents recovered from tissue cultures of monkey kidney cells. I. Origin and properties of cytopathogenic agents S.V.₁, S.V.₂, S.V.₄, S.V.₅, S.V.₆, S.V.₁₁, S.V.₁₂, and S.V.₁₅.** — *Amer. J. Hyg.* **63**, 204-215. [Authors' summary modified.] **2619**

Eight apparently new, submicroscopic, filtrable, cytopathogenic agents were recovered in cultures of kidney tissue from rhesus and cynomolgus monkeys. No definite associations were made between these agents and naturally occurring diseases of monkeys and other animals. Their significance in the production of poliomyelitis vaccine and the problems created by them during vaccine safety testing in tissue culture were discussed.

VALADAO, F. G. (1955). **The H.I. test for the diagnosis of Newcastle disease in Mozambique. Its value as an indication of immunity.** — *Bull. epiz. Dis. Afr.* **3**, 373-380. [French summary. Author's English summary modified.] **2620**

It was concluded from haemagglutination-inhibition tests on experimentally and naturally infected fowls, that this test is of little value for the diagnosis of Newcastle disease in Mozambique on account of the acute form of the disease. Fowls which were inoculated with active or vaccinal virus did not give positive reactions until 7 days later. The inability of the test to demonstrate immunity was revealed by the resistance to infection of vaccinated fowls that gave negative reactions.

TORLONE, V. (1956). **Osservazioni su alcuni caratteri di un ceppo di virus di Newcastle (F di Asplin): Resistenza a diverse temperature, potere emoagglutinante e termoresistenza della emoagglutinina a 56°C. [A study of a strain of Newcastle disease virus.]** — *Vet. ital.* **7**, 312-320. [English, French and German summaries.] **2621**

T. studied the resistance of a strain of Newcastle disease virus used in the preparation of live vaccine for oculo-nasal use. The haemagglutinating activity of the virus was largely unaffected by growth for 48 hours at temperatures of 25° and 37°C., but after several minutes at 56°C., the haemagglutinating activity was destroyed. — I. W. JENNINGS.

GROUPÉ, V. & DOUGHERTY, R. M. (1956). Neuropathic effect of Newcastle disease virus in mice and modification of host response by receptor destroying enzyme, viral interference, and xerosin.—*J. Immunol.* **76**, 130-137. [Abst. from authors' summary.] 2622

The neuropathic effect on mice of egg-propagated N.D.V. for mice was modified by viral interference, prior injection of receptor destroying enzyme (RDE), heat inactivated RDE, or xerosin. A strain which was neuropathic for mice only in low dilution interfered with the effect on mice of another, highly neuropathic strain.

BADIALI, C. & OLIVO, R. (1956). Sulla persistenza di anticorpi fissanti il complemento nel piccione naturalmente infettato da virus ornitosico. [Persistence of complement-fixing antibodies in pigeons infected with psittacosis].—*G. Batt. Immun.* **48**, 417-422. [English, French and German summaries.] 2623

See also absts. 2641 (relationship between infestation with *Oesophagostomum dentatum*, swine erysipelas and swine fever); 2702 (differential diagnosis of poisoning and swine fever); 2752 (report, Northern Ireland); 2753 (report, New Zealand); 2755 (report, Federation of Rhodesia and Nyasaland).

Investigations on the persistence of complement-fixing psittacosis antibodies in pigeon serum showed that the level falls rapidly, as a rule, after infection, and disappears in 3-5 months. Of the 10 pigeons used in the test, all apparently healthy, one was artificially infected and the others possessed natural antibodies at titres ranging from 1:32 to 1:512. Further tests in pigeons with low positive titres (up to 1:16) showed that serum antibodies disappeared in about 28 days.

—I. W. JENNINGS.

GORET, P. (1955). Les infections animales du groupe ornithose-psittacose (néorickettioses). [Animal diseases of the psittacosis group ("neorickettsial" infections)].—*Maroc méd.* **34**, 951-962. 2624

This is a general discussion on the classification and the pathology of this group of diseases. No new knowledge.

—I. W. JENNINGS.

IMMUNITY

DIXON, F. J., MAURER, P. H., WEIGLE, W. O. & DEICHMILLER, M. P. (1956). Rates of antibody synthesis during first, second and hyperimmune responses of rabbits to bovine gamma globulin.—*J. exp. Med.* **103**, 425-438. [Authors' summary modified.] 2625

In all 3 responses the rate of antibody synthesis increases while antigen is circulating and declines rapidly after elimination of detectable circulating antigen. The initial rates of decline of antibody synthesis are similar for all 3 responses.

A relatively persistent production of antibody appears after repeated stimulation and increases in proportion to the number of stimulations.

KEISS, R. W. & MORRISON, S. M. (1956). Identification of Colorado big game animals by the precipitin reaction.—*J. Wildlife Mgmt.* **20**, 169-172. [Authors' summary modified.] 2626

Antisera were prepared in fowls with alum precipitated antigens. With high-titred specific antisera, meat, blood, or blood-stains were differentiated quickly and accurately. Although cross reactions occurred, they did not prevent identification, because in no case did the heterologous reaction equal the homologous precipitin reaction in titre, speed, or intensity. Attempts to eliminate cross reactions by absorption failed.

See also absts. 2478 (streptococcal antigens); 2494 (Hole's test for Johne's disease); 2496 (immunology in Johne's disease); 2502 (swine erysipelas bacterin); 2507 (bovine pasteurellosis vaccine); 2516 (ring test in pullorum disease); 2521-2539 (brucellosis); 2560 (bovine contagious pleuro-pneumonia vaccine); 2584-2585 (toxoplasmosis); 2594 (rabies); 2596 (haemagglutination of vaccinia virus in fowls); 2604 (c.f. test with antigens from bluetongue-infected mouse brains); 2607 (porcine bronchopneumonia from crystal violet swine fever vaccine); 2612 (dual distemper-virus hepatitis vaccine); 2613 (virus hepatitis); 2620-2622 (Newcastle disease); 2623 (psittacosis antibodies in pigeons).

PARASITES IN RELATION TO DISEASE [GENERAL]

MIMOĞLU, M. (1955). Samsun, Ordu, Giresun ve Bolu Vilâyetlerinde "Hematuria vesicalis bovis" li siğırlarda parazitolojik araştırmalar. [Parasitological examination of cattle with haematuria, in some Turkish provinces.] —

Vet. Fak. Derg. **2**, 183-192. [In Turkish. Abst. from German summary.] 2627

The following helminth parasites were found in 70 Turkish cattle with haematuria:—*Dicrocoelium lanceolatum*, *Fasciola hepatica*,

Echinococcus, *Trichostrongylus* species, *Trichuris ovis* and *Gongylonema pulchrum*. The following ticks were also found:—*Boophilus annulatus*, *Ixodes ricinus*, *Rhipicephalus bursa*, *R. sanguineus*, *Hyalomma savignyi*, *H. detritum*, *H. excavatum*. Blood smears re-

vealed *Theileria* infection in 16 animals and *Babesia* infection in 5. Examination of 26 urinary bladders revealed no parasites. It was concluded that parasites play no part in the development of bovine chronic haematuria.

—M.G.G.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

MCGREGOR, W. S. & BUSHLAND, R. C. (1956). **Research on the use of systemic insecticides for the control of livestock pests.**—*J. econ. Ent.* **49**, 86-88. 2628

A review of current work in the U.S.A., mainly directed to discover a systemic insecticide to control the larvae of the *Hypoderma* spp. in cattle. Infection of wounds by larvae of *Cochliomyia hominivorax* in the g. pig is used as a screening test for drugs injected subcutaneously. "Lindane", dieldrin and aldrin killed the larvae without harming the host. Later tests in cattle affected with warbles showed that "Lindane", dieldrin, aldrin, the proprietary organic phosphorus insecticides "Bayer L. 13/59", "Diazinon" and "Chlorthion" killed 2nd and 3rd instar larvae but not the first instar larvae during migration. These compounds have also been found effective as systemic insecticides in the control of biting flies and lice.—W. E. PARISH.

BORCHERT, A. (1956). Versuche zur Verhinderung der Lochbildung in der Haut verdaselter Färsen durch Behandlung mit derrishaltigen Präparaten. [Prevention of perforation of the skin by *Hypoderma* larvae by cutaneous application of derris preparations.]—*Mh. VetMed.* **11**, 80-83. 2629

In an experiment involving 92 heifers, some of the animals were treated once a week between January and May on both sides with one of 3 proprietary derris preparations, some were treated on one side, and some were left as controls. Comparison of the numbers of warbles revealed a 30-72% reduction in the treated areas depending on the preparation used.—M.G.G.

HANSENS, E. J. (1956). **Control of house flies in dairy barns with special reference to diazinon.**—*J. econ. Ent.* **49**, 27-32. 2630

Several phosphate insecticides were tested for housefly control in cow byres. "Diazinon" proved to be the most effective. It was applied as a residual spray or as wet or dry bait, the spray giving best results and to some extent controlling *Stomoxys* which was unaffected by the baits.

Analysis of the milk of cattle in the treated byres showed that there was no "Diazinon" in the milk, no taint and no cholinesterase inhibitor.

"Diazinon" appears to act by a fumigation and direct contact effect, and horn flies attacking the cattle out of doors were said to be controlled for about 2 months in cattle using the sprayed byres, even though they were only brought into the byres for feeding and milking.—W. E. PARISH.

JONES, C. M. & RICHEY, D. J. (1956). **Biology of the black flies in Jasper County, South Carolina, and some relationships to a *Leucocytozoon* disease of turkeys.**—*J. econ. Ent.* **49**, 121-123. 2631

An investigation was made of species of *Simulium* and their biology in the above county of the U.S.A. with a view to discovering the vectors of *Leucocytozoon smithi* infection of turkeys. Only *Simulium slossonae* and *S. con-gareenarum* were found to feed on turkeys and the former was shown to be a vector of the disease.—W. E. PARISH.

RADELEFF, R. D. & WOODARD, G. T. (1956). **Toxicological problems in the use of systemic insecticides for livestock.**—*J. econ. Ent.* **49**, 89-91. 2632

A general review of the hazards pertaining to the use of systemic insecticides, with reference to individuals or groups of animals that for various reasons may be hypersusceptible to poisoning; residues in animal tissues that may be toxic to man, or toxic to the host if suddenly released from the storage sites; and local effects of injections or oral dosing.

—W. E. PARISH.

LEGG, J., BROOKS, O. H. & JOYNER, C. (1955). **A note on the appearance of a DDT resistant cattle tick *Boophilus microplus* (Canes) in Queensland.**—*Aust. vet. J.* **31**, 148. 2633

Many adult female ticks in the last 3-4 days of parasitic life and many nymphs survived treatment with 0.5% para para isomer D.D.T.—M. D. MURRAY.

STEINEGGER, P. & BERGER, R. (1956). Die Vogelmilbe (*Dermanyssus avium*). Beobachtungen über die Temperaturabhängigkeit des Entwicklungszyklus. [Effect of environmental temperature on the life cycle of the

fowl mite.] — *Arch. Geflügelk.* **20**, 81-89. [English summary.] 2634

Development and reproduction of *Dermanyssus gallinae* was retarded at 15°C. and inhibited at 9°C.—M.G.G.

See also absts. 2500 (house flies as transmitters of swine erysipelas); 2617 (transmission of myxomatosis by mosquitoes); 2627 (arthropods found on cattle with haematuria); 2752 (report, Northern Ireland); 2759 (book, testse flies).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

KULASIRI, C. & SENEVIRATNE, R. D. (1956). *Gigantocotyle explanatum* Creplin (Trematoda: Paramphistomidae) infection of the liver of the buffalo in Ceylon.—*J. comp. Path.* **66**, 83-88. [Authors' conclusions modified.] 2635

Gigantocotyle explanatum, of which *G. bathycotyle* and *Explanatum explanatum* are considered to be synonyms, was the only amphistome found in the liver of the buffalo in Ceylon. It was found in liver substance, portal veins and bile ducts. The pre-adult stage in the portal vein is described. The histopathology of the liver was studied and tentative explanations of the changes observed, suggested. The evidence points to a transperitoneal pathway of infection. The absence of the parasite from the gall-bladder was noted and possible reasons for this were discussed.

DOEKSEN, J. & HEMKES, O. J. (1955). De bestrijding van de leverbotslak. [Control of *Limnaea truncatula*.]—*Overdruk Cent. Inst. landbouwk. Onderz., Wageningen*. No. 251. pp. 6. [Reprinted from C.I.L.O. report, 1954. pp. 78-83.] [In Dutch. Abst. from English summary.] 2636

The incidence of liver flukes in sheep on farms, in which 1% dinitro orthocresol (DNC) had been sprayed on to the drainage ditches, was lower than where NaCl had been applied. The authors recommend 5-6 litres of 1% DNC per 100 m. of ditch.—M.G.G.

SINNECKER, H. (1954-55). Über die Bedeutung städtischer Abwässer für die Verbreitung von Infektionsmöglichkeiten. II. Die äusseren Infektketten von *Taenia saginata* (Goeze 1782) vom Menschen zum Rind im Kreis Cottbus. [Importance of town sewage in spreading disease. II. Transmission of *Taenia saginata* from man to cattle in the district of Cottbus.] — *Wiss. Z. Humboldt-Univ.* **4**, 325-328. [English, French and Russian summaries.] 2637

Between 1949 and 1954 the incidence of cysticercosis in slaughter cattle in Cottbus

rose from 1.2% to 3.95%. Investigations were made on the premises of 56 owners of affected cattle. On 62% of the farms, contamination of pasture and fodder with human faeces was revealed, and on 52% contamination of pasture by irrigation with sewage or contaminated river water. Of 117 people on the premises, 3 were carriers of *T. saginata*.—M.G.G.

TIMM, W. (1954-55). Untersuchungen mit *Strongyloides ransomi* (Schwartz und Alicata 1930) und *S. papillosus* (Wedl 1856) beim Kaninchen. [Studies of *Strongyloides ransomi* and *S. papillosus* in rabbits.] — *Wiss. Z. Humboldt-Univ.* **4**, 329-336. [English, French and Russian summaries.] 2638

The prepatent period for *S. papillosus* in rabbits was 8-9 days, and for *S. ransomi* 6-8 days. T. gave measurements of eggs, larvae and adults of these nematodes. Treatment of infested rabbits with a proprietary crystal violet preparation, administered by mouth, was effective.—R.M.

PAMUKCU, A. M. & MIMIOĞLU, M. (1955). Merkeplerde görülen endoparazitler de bunların kandaki eosinophil leucocyte'lerle olan münasebeti. [Intestinal parasites of donkeys. Relationship between infestation and eosinophilia.] — *Vet. Fak. Derg.* **2**, 141-165. [In Turkish. Abst. from English summary.] 2639

In a study on donkeys there was no relationship between the degree of helminth infestation and the eosinophile count.—T.E.G.R.

GOLDBERG, A. & RUBIN, R. (1956). Survival on pasture of larvae of gastrointestinal nematodes of cattle.—*Proc. helm. Soc. Wash.* **23**, 65-68. 2640

Parasitized cattle were allowed to contaminate an area of pasture, which was then divided into 4 plots. A calf was placed in each plot after 19, 61, 122, and 256 days respectively, and removed after 2-3 weeks. Temp. and rainfall were measured daily throughout the experimental period. The second, third and fourth calves acquired considerably less worms than did the first calf. Only 4 of the

10 species of nematodes survived the winter and were able to infect the fourth calf.

—M.G.G.

TARCZYŃSKI, S. (1955). Inwazja *Oesophagostomum dentatum* Rudolphi, 1803 u świń w przebiegu różycy lub pomoru świń. [Relationships between infestation with *Oes. dentatum* and swine erysipelas and swine fever.]—*Roczn. Nauk. rol. Ser. E.* 66, 603-609. [English and Russian summaries] 2641

Over 80% of pigs in Poland are infested with *Oes. dentatum*.

In a survey on a total of 311 pigs, infestation with *Oesophagostomum* was slight or absent in 91.22% of cases of swine erysipelas, 87.27% of those of swine fever and 37.14% of the healthy pigs. There was a high degree of infestation in 9.7% of clinically healthy pigs, and in 3.63% of those with swine fever; none of those with swine erysipelas was severely infested. It was concluded that severe bacterial or viral infection in pigs has a considerable influence on the intensity of *Oesophagostomum* infestation which seems to diminish in sick animals.—M. GITTER.

LANDRAM, J. F. & CAUTHEN, G. E. (1956). Some experiments on the effect of low level phenothiazine on the development of *Ostertagia ostertagi* larvae in bovine feces.—*Proc. helm. Soc. Wash.* 23, 24-25. 2642

Phenothiazine, given orally to 2 calves at the rate of 0.5 or 1 g. daily, prevented *O. ostertagi* ova from hatching in the faeces after 1-3 days of treatment; 48 hours after treatment was stopped, larval development was again normal.—M.G.G.

PANEbianco, F. (1955). Modificazioni ematiche in vitelli con micro-ascaridiosi sperimentale. [The blood picture in calves infected with *Neoascaris vitulorum* eggs.]—*Nuova Vet.* 31, 126-130. [English and French summaries.] 2643

There was a mild eosinophilia in experimental infestation. This increased on re-infestation. The r.b.c., lymphocyte and monocyte counts were not affected.—T.E.G.R.

I. HERIN, V., THIENPONT, D. & FAIN, A. (1955). Filarioses des bovidés au Ruanda-Urundi. I. Etude clinique. [Filaria infections of cattle in the Belgian Congo. I. Clinical study.]—*Ann. Soc. belge Méd. trop.* 35, 505-522. [Flemish summary.] 2644

II. HERIN, V. & FAIN, A. (1955). Filarioses

des bovidés au Ruanda-Urundi. II. Etude histopathologique. [Filaria infections of cattle in the Belgian Congo. II. Histopathological study.]—*Ibid.* 523-533. [Flemish summary.] 2645

III. FAIN, A. & HERIN, V. (1955). Filarioses des bovidés au Ruanda-Urundi. III. Etude parasitologique. (A). Note sur *Parafilaria bovicola* Tubangui, et description de deux filaires nouvelles. [Filaria infections of cattle in the Belgian Congo. III. Parasitological study. (A). *Parafilaria bovicola*.]—*Ibid.* 535-554. [Flemish summary.] 2646

IV. FAIN, A., HERIN, V. & THIENPONT, D. (1955). Filarioses des bovidés au Ruanda-Urundi. III. Etude parasitologique. (B). Filaires des genres *Setaria* et *Onchocerca*, et microfilaires sanguines et dermiques. [Filaria infections of cattle in the Belgian Congo. III. Parasitological study. (B). *Setaria* and *Onchocerca*.]—*Ibid.* 555-582. [Flemish summary.] 2647

I. The authors describe two new skin conditions associated with cutaneous microfilariæ, one, of a chronic mange-like nature characterized by slight pruritus, hyperkeratosis and pityriasis of the head, base of horns, and along the back, and unaffected by acaricides or insecticides. The microfilariæ, easily demonstrable in the lesions, are believed to be those of *Onchocerca gutturosa*. The second condition is characterized by ulcerations particularly around the umbilicus, clinically resembling "summer sores" of equines, and in some cases amenable to surgical treatment.

II. The histopathological findings of these conditions are described. Large numbers of microfilariæ, surrounded by an eosinophile infiltration, are present in affected areas of skin in both cases.

III. Of species of filariæ occurring in Ruanda-Urundi, the authors refer to *Parafilaria bovicola*, already recorded from this area and associated with cutaneous haemorrhages caused by the ovipositing female worms. They also describe two new species, which they propose to name *Agamofilaria boophaga* n. sp. and *Dipetalonema ruandae* n. sp. The former, of which the larva only is described is associated with the ulcerative dermatitis described in I and II. The latter has been found in the loose oesophageal connective tissue, under the conjunctiva and in the skin. Both male and female specimens are described.

IV. The authors include a note on

Setaria cervi and refer to certain morphological deviations from the descriptions of other authors. They also give measurements for male and female *O. gutturosa*, and for fragments of adult *O. gibsoni*. Nematodes

found in sections of the aorta were thought to be *O. armillata*. A study is reported of microfilariae of *S. cervi* from blood, and of *O. gutturosa* and *D. ruandae* from skin.

—M. L. CLARKE.

See also absts. 2627 (parasites in cattle with haematuria); 2730 (presence of salmonella in bovine and ovine carcasses with leucosis and fascioliasis).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

OVERGOOR, G. H. A. (1956). Enkele gevallen van carcinoma uteri bij het rund. [**Carcinoma of the uterus in two cows.**]—*Tijdschr. Diergeneesk.* **81**, 436-439. [In Dutch. English, French and German summaries.] **2648**

Adenocarcinomas were found at the slaughter of 2 cows in the cervix and in a uterine horn, respectively. In both cases there were metastases in the regional and bronchial lymph nodes and in the lungs; in one there were also metastases in the kidneys, omentum and mesentery.—R.M.

WYNNE, E. S. & RUSSELL, W. O. (1955). **Pathogenesis of bovine ocular squamous cell carcinoma. Histopathologic and clinical studies.**—*Amer. J. Path.* **31**, 584-585. [Abst. from abst.] **2649**

Histological examination was made of lesions from over 800 abattoir cattle, and 350 animals were observed clinically for periods up to 2 years. Benign precursor lesions were studied of the conjunctiva ("plaques" of squamous metaplasia, and papillomas which developed from the plaques), and of the skin of the lid (keratomas, or "boggy lids"—acanthosis with marked subepithelial inflammation). Any of these benign kinds of lesion might develop into carcinomas.—E. COTCHIN.

BRODEY, R. S. (1956). **The diagnosis and treatment of neoplasms in small animals.**—*Vet. Ext. Quart. Univ. Pa.* No. 141. pp. 49-69. **2650**

An interesting and useful account, from the viewpoint of clinical diagnosis and of treatment of neoplasms in dogs, dealing chiefly with the distinction between benign and malignant tumours, the detection of metastases, the submission of material for laboratory examination, and the value of surgical and X-ray therapy. Some of the tumours referred to are illustrated. The article would be very helpful to a practising veterinary surgeon who, having

had little contact with such cases before, was beginning to encounter increasing numbers of cases of neoplasia in dogs.—E. COTCHIN.

LARSSON, B. (1956). **Statistical analyses of cutaneous tumours in dogs, with special reference to mastocytoma.**—*Nord. VetMed.* **8**, 130-139. [In English, German and Swedish summaries. English summary modified.] **2651**

266 cutaneous tumours operated on at the Veterinary College, Stockholm, were statistically analysed by chi-square and Student's t-test as to frequency, age and sex distribution when compared with the general dog population in Stockholm during the same period (1953-55). The data showed that:—Epithelial and mesenchymal tumours were equally frequent. Among the epithelial tumours no type predominated. Among the mesenchymal tumours, mastocytomas predominated but not with statistical significance. Cutaneous tumours were definitely a disease of the higher ages. Boxers and Alsations showed a predisposition to cutaneous tumours while Fox Terriers showed a significant resistance. Cutaneous tumours were equally distributed among the sexes. Among the mastocytoma cases the Boxer dominated significantly, and there was no sex predisposition.

MCCOY, J. R., ALLISON, J. B., CROSSLEY, M. L. & WANNEMACHER, R. W. (1956). **Chemotherapy of canine cancer with N-(3-oxapentamethylene)-N', N'-diethylenephosphoramidate (MEPA)**—*Amer. J. vet. Res.* **17**, 90-97. **2652**

The effects of MEPA in reducing white and red cell counts, haemoglobin content, platelet counts and plasma proteins of dogs were investigated. High labile protein stores protected dogs against the toxic effects of the drug, which was more toxic when given intravenously than when given orally. In the cancer clinic where MEPA was used, weekly

blood samples were taken for white cell and differential counts, to aid in assessing drug dosage and duration of administration. Animals developing acute symptoms of toxicity were given antihistamine in large volumes of Ringer's solution, with antibiotics to prevent secondary bacterial infections.

So far, a series of 100 cases has been studied, of which cases of malignant lymphoma formed the largest individual type. Responses in 25 of the 100 cases are shown in a table. The drug produced regression of lymph nodes in 6 of 7 dogs with malignant lymphoma: at the dosage used, toxic symptoms accompanied regression, and further study of dosage is being made.

—E. COTCHIN.

HJÄRRE, A. (1956). Über Leukosen bei Tieren mit besonderer Berücksichtigung der Verhältnisse beim Rind. [**Leucosis in animals with special reference to cattle.**] — *Berl. Münch. tierärztl. Wschr.* **69**, 125-129. [English summary.] **2653**

A review article on leucosis with particular reference to cattle in Sweden. Aetiology, classification, transmission, diagnosis, treatment and factors of age and heredity were discussed.—M.G.G.

GÖTZE, R., ROSENBERGER, G. & ZIEGENHAGEN, G. (1956). Über Ursachen und Bekämpfung der Rinderleukose. III. Ernährung und Haltung, cancerogene Strahlen und Stoffe. [**Aetiology and control of bovine leucosis. III. Nutrition, management and carcinogens.**] — *Dtsch. tierärztl. Wschr.* **63**, 85-89. **2654**

Poor nutrition or bad management have not been shown to be a fundamental cause of bovine leucosis, but their importance as contributory factors is highly probable. X-rays, radioactivity and chemical substances, which are known to provoke leucosis in man and in lab. animals, probably have the same effect in cattle.—M.G.G.

BEARD, J. W. (1956). **Virus of avian myeloblastic leucosis.**—*Poult. Sci.* **35**, 203-223. **2655**

The virus used was obtained from a single fowl in 1949, and had been passaged about 150 times. It occurred in high concentration in the plasma. The method used included centrifuging the filtered plasma at 20,000 rev. x g. for 45 min., resuspending the sediment in saline and spinning at 3,000 rev. x g.

for 10 min. to eliminate aggregated material, and re-centrifuging the supernatant at 20,000 rev. x g. for 30 min. The sequence, repeated 3-5 times provides a final purified virus sample suspended in Ca-free Ringer's soln.

The virus is spheroidal, and sediments with a single slightly diffuse boundary at the rate 693s.; this confirms electron microscope evidence of variation in the size of the particles. The dry density is 1.29 in D₂O and the value for the hydrated particle, in bovine serum albumin soln. is 1.059. The water content is therefore about 80% by volume. The average diameter of the hydrated particle is 144 mμ.

Electrophoretic studies showed the mobility to be about -4.5×10^{-5} cm.² sec.⁻¹ volt⁻¹ at pH 8.5, declining to about -3.4×10^{-5} cm.² sec.⁻¹ volt⁻¹ at pH 6.0.

A detailed chemical examination was not made. It is probable however that the agent contains much lipid of high P content, and little P outside the lipid fraction.

The virus dephosphorylates adenosine inosine triphosphates—a property not found in other viruses. The enzyme is apparently carried by the particle, and appears to be an intrinsic or integral constituent. Enzymic action is enhanced by the presence of Ca and/or Mg ions and is optimum at pH 7.16. A micro-method has been evolved for the estimation of enzyme activity (Green *et al.* (1954); Mommaerts *et al.* [*V.B.* **25**, 2483]).

Infectivity rapidly diminished between 56° and 46°C. and at 3° and -15°C. only 1% activity remained after 3 weeks. The enzymic activity was much more stable. The Arrhenius constant for destruction of infectious activity at 46° to 56°C. was 89,000 cal. per mol. The pH optimum for stability was 7.0.

Titration of the virus showed that quantal response and latent period were related to dose, and that the latent period was essentially constant for a given strain of fowl. Various strains and breeds vary greatly in their response to the virus. About 4 million particles were required to infect 50% of the most susceptible White Leghorns. One strain of this breed was unusually resistant to infection, viz. the line inbred for susceptibility to neurolymphomatosis. 1/v inj. into 3-day-old chicks gave the highest proportion of "takes".

Anti-viral immune rabbit serum fixed complement with virus concentrate, and also with homogenates of normal fowl tissue. The Forssman reaction occurred with immune

serum produced in rabbits with homogenates of g. pig kidney.

It was not found possible to separate the virus from the normal fowl tissue and Forssman antigenic components.

Immune serum from hyperimmunized fowls neutralized the virus and precipitated it quantitatively under proper conditions. The normal tissue component and the Forssman antigens were also precipitated. It was concluded that the virus is composed of:— (1) a substance foreign to the fowl host; (2) a

substance behaving antigenically as normal fowl tissue; (3) a heterophile antigen.

—JOHN G. CAMPBELL.

PENTIMALLI, F. (1956). **Experimental monocytic leukemia.**—*Science*. **123**, 458-459. 2656

Repeated inj. with various proteins in rabbits caused a considerable increase in the number of leucocytes with a preponderance of monocytes and monoblasts undergoing different forms of mitosis. This experimental condition is considered to correspond closely with monocytic leucaemia of man.—T.E.G.R.

See also *absts.* 2730 (presence of salmonella in ovine and bovine carcasses with leucosis and fascioliasis); 2752 (report, Northern Ireland).

NUTRITIONAL AND METABOLIC DISORDERS

FRENCH, M. H. (1956). **The importance of water in the management of cattle.**—*E. Afr. agric. J.* **21**, 171-181. 2657

A study of the direct relationship between water requirements and the environment to which animals in general and cattle in particular can adapt themselves. The differences of requirements of zebu and European cattle are discussed.—T.E.G.R.

GREIG, W. A. & BOYNE, A. W. (1956). **The effect of high and low planes of nutrition on the haematology of monozygous twin calves.**—*J. agric. Sci.* **47**, 150-153. [Authors' summary modified.] 2658

With 8 pairs of monozygous twin heifer calves aged from 7 to 9 months, it was shown that the mean haemoglobin conc. of those reared on a high plane of nutrition was higher than of those reared on a low plane. The relative anaemia of the latter was microcytic but normochromic in type. Its cause must await further investigation, but these features are not inconsistent with a deficiency of iron. Monozygous twins proved more suitable than unrelated animals, as shown by the smaller variability within than between pairs. Day-to-day variation in the same animal must be considered an important possible source of sampling error.

NICHOLS, R. E. (1956). **Physical properties of paunch juice which may contribute to bloating.**—*Vet. Med.* **51**, 47-52. 2659

N. discusses various factors which may be involved in the phenomenon of bloat, particularly frothy bloat. Types of diet that may be involved in bloat production are mentioned, together with a consideration of feeding habits and the implications these may have on this condition. Physical factors and conditions in

the rumen are outlined, accompanied by photographs of various laboratory equipment and techniques for their evaluation.

—D. S. PAPWORTH.

IRWIN, D. H. (1956). **Over-eating on fruit by bovines.**—*J. S. Afr. vet. med. Ass.* **27**, 9-13. 2660

Symptoms range from slight depression to coma, depending on the severity of the case. The condition is to be differentiated from milk fever, acetonaemia and foreign body syndrome. Mild cases are given laxatives, but rumenotomy is usually carried out. As soon after the operation as possible, the animal is given, by means of a stomach tube, the fluid extract of rumen ingesta from the abattoir.

—M.G.G.

DRYDEN, L. P., GLEIS, P. F. & HARTMAN, A. M. (1956). **Reproduction and lactation of rats fed glyceryl trilaurate-containing diets.**—*J. Nutr.* **58**, 335-339. [Authors' summary modified.] 2661

Rats were fed diets containing glyceryl trilaurate, with methyl linoleate as a source of fat. With such diets, Keane *et al.* (1951) found a deficiency of an unidentified factor required by the female rat to rear its young successfully. No such deficiency was found in the present work.

HERRMANN, M. (1955). **Fütterungsversuch mit Steinkohlenflugasche bei Milchkühen. [Feeding experiments with coal ash in dairy cows.]**—*Inaug. Diss., Hanover.* pp. 191. 2662

An investigation into the possible toxicity for cattle of dust deposited on pastures from the chimneys of coal-burning furnaces in the Ruhr district, including long-term observations of cows on affected pastures, and feeding ex-

periments with ash collected from chimneys. H. concluded that coal-ash dust was harmless for cattle.—R.M.

NEAL, W. M. (1956). **Cannibalism, pick-outs and methionine.**—*Poult. Sci.* **35**, 10-13. 2663

Methionine, given as 0.2% of the diet, significantly reduced the incidence of cannibalism in fowls. High egg production was attained.—M.G.G.

HEUSER, G. F. (1956). **Feeding chemically treated seed grains to hens.**—*Poult. Sci.* **35**, 160-162. 2664

Egg production declined considerably when fowls were given maize treated with 50% tetramethyl-thiuram disulphide ("Ara-san") or wheat treated with 5% ethyl-mercury-phosphate as one-third or half of their ration. Maize treated with 7.7% ethyl mercury - p - toluene - sulphonanilide or 12% hydroxy-mercuricresol had no adverse effect.—M.G.G.

HAUSER, M. M., ANDERSON, G. W., PEPPER, W. F. & SLINGER, S. J. (1956). **Further evidence on the relation of coliforms to the growth response of chicks to antibiotics.**—*Poult. Sci.* **35**, 27-36. 2665

The growth response of chicks to various antibiotics was accompanied in the majority of cases by an increase in intestinal coliforms.—M.G.G.

CHARTON, A., BALLOT, H., DURIEUX, J., GUILHON, J., JACLOT, P., PINGUET, M. & PUECH, G. (1955). **Colloque sur les troubles de la nutrition et leurs répercussions sur l'élevage ovine. [Symposium on nutritional disorders in sheep.]**—*Rec. Méd. vét.* **131**, 953-1012. 2666

The authors described the nutritional disorders of sheep, and discussed their aetiology, prevention, treatment, and their connexion with parasitic and infectious diseases. The techniques of intensive sheep rearing, and a system of rearing sheep entirely in the open were described.—M.G.G.

PANEBIANCO, F. & DEL BONO, G. (1955). **Tesaurosi puriniche dismetaboliche in bovino; segnalazione di 5 casi. [Abnormal purine metabolism in cattle. A study of five cases.]**—*Profilassi.* **28**, 225-234. [English and French summaries.] 2667

Excessive deposition of crystalline purine derivatives was encountered in apparently normal slaughter cattle. The macroscopic and

histological findings in 5 cases are described. In each of these the liver and its associated lymph nodes and the spleen were involved and in one case the kidneys were also affected. The condition in the liver is attributed to faulty metabolism due to insufficient enzyme activity, and it is considered that the crystals are carried to other organs by the blood and/or lymph stream.—T.E.G.R.

ROSS, M. A., GAINER, J. H. & INNES, J. R. M. (1955). **Dystrophic calcification in the adrenal glands of monkeys, cats and dogs.**—*Arch. Path.* **60**, 655-662. 2668

The occurrence of adrenal calcification is described in animals examined P.M. for a variety of reasons. Calcareous deposits were found in 27 out of 54 monkeys, 14 out of 46 cats and 2 out of 57 dogs. The histology of these is described in detail with photomicrographs. In the monkeys and dogs and in some cats, bodies identical with the corpora amyacea described in other species were observed. A granular form could be differentiated in the cats which might be associated with a hitherto undescribed clinical picture, possibly related to feline distemper.—P. H. HERBERT.

BENZIE, D., BOYNE, A. W., DALGARNO, A. C., DUCKWORTH, J., HILL, R. & WALKER, D. M. (1955). **Studies of the skeleton of the sheep. I. The effect of different levels of dietary calcium during pregnancy and lactation on individual bones.**—*J. agric. Sci.* **46**, 425-440. 2669

This is a first report from a project designed to assess adequacy of mineral intake by hill-grazed sheep in Scotland. Parallel field studies with X-ray examination throughout life and skeleton analysis at death are also in hand. The importance of mineral deficiencies in these sheep and the various methods used to study them are critically discussed. Data are presented from three groups of mature ewes fed, during pregnancy and lactation, diets giving 1.4 g., 4.5 g. and 7.5 g. calcium daily. These levels were without effect on number of lambs, birth weight or growth while milk fed. Blood calcium was lower in the first group and bone resorption greater. Blood inorganic phosphorus was unchanged. Detailed study of bone ash revealed variation in degree of resorption within and between bones. Radiological examination of flesh-free bone gave a similar picture. Data are given in detail and illustrated with X-ray plates.

—P. H. HERBERT.

NELSON, A. B., GALLUP, W. D., ROSS, O. B. & DARLOW, A. E. (1955). **Supplemental phosphorus requirement of range beef cattle in north central and southeastern Oklahoma.**—*Tech. Bull. Okla. agric. Exp. Sta.* No. T-54. pp. 29. **2670**

This technical bulletin gives the results of a 3-year experiment with cattle grazing border-line deficient pastures. In the south-eastern area the minimum requirement of range beef cows lay between 7 and 12 g. per head daily. In the north central area requirements of 6–9 g. (according to season) were met without supplements, though the latter might be required in dry seasons. Figures on which these recommendations are based include analysis of feeds and grasses together with actual consumption of supplement and estimated total intake. Serum phosphorus levels, growth, weight and calving data are used to obtain a minimum requirement figure. In each area three groups of 10 two-year-old Hereford heifers and of newly weaned heifer calves were used for controls or fed lesser and greater phosphorus supplements.

—P. H. HERBERT.

MANN, I. (1955). **How Kenya is tackling the phosphorus deficiency in African owned livestock.**—*Bull. epiz. Dis. Afr.* **3**, In English pp. 390–394. In French pp. 423–426. **2671**

An account of a mobile bonemeal factory in Kenya, operated on a non-profit making basis. Dry bones are bought from African cattle owners, and converted into a lick containing trace elements and salt. Stringent measures are taken to prevent the transmission of anthrax. Bones are subjected to both wet and dry sterilization and the meal is tested by inoculation into mice.—M.G.G.

SEEKLES, L. & BOOGAERDT, J. (1956). **Uitkomsten van een voortgezette voederproef met magnesiumoxyde-houdende koekjes als voorbehoedend middel tegen kopziekte. [Results of further trials with cattle cake containing magnesium oxide as a preventative for grass tetany.]**—*Tijdschr. Diergeneesk.* **81**, 281–296. [In Dutch. English, French and German summaries. Abst. from English summary.] **2672**

In a further trial [see also *V.B.* **25**, 3315] involving 12,700 cows, the incidence of grass tetany in treated animals was 1.1% as against 4.25% in controls.—M.G.G.

BOSCH, S. (1955). **Enkele gegevens betreffende de invloed van meerjarige zware stikstof-**

bemesting op de gehalten aan mineralen en koper van weidegras en op de kopergehalten van runderbloedserum. [Effect of nitrogenous fertilizers on the copper and mineral content of pasture grass and on the copper content of the blood of cattle.]—*Overdruk Cent. Inst. landbouwk. Onderz., Wageningen.* No. 260. pp. 11. [Reprinted from C.I.L.O. report, 1954. pp. 137–147. [In Dutch. Abst. from English summary.] **2673**

In a field which had been dressed annually for several years with 200 kg./hectare of nitrogenous fertilizer, the grass contained less copper, potassium oxide and phosphorus pentoxide, and the cattle had a lower Cu content in the blood, than in a field which had received 80 kg./ha.—M.G.G.

LEE, H. J. (1956). **The influence of copper deficiency on the fleeces of British breeds of sheep.**—*J. agric. Sci.* **47**, 218–224. [Author's summary modified.] **2674**

Border Leicester, Romney Marsh, Lincoln and Dorset Horn ewes were confined for 3 years to copper-deficient pastures.

Fleeces revealed abnormalities identical with those seen in similarly copper-deficient Merino and Merino crossbred sheep [*V.B.* **20**, 1707]. The crimp characteristic of each breed was lost, and straight, "steely" fibres were produced. Capacity for crimp formation returned immediately when the copper status was restored. Ewes which received regular copper supplements grew normal wool.

DANDAMAEV, S. G. & ABRAMOVA, S. M. (1956). **[Symptoms and pathology of endemic ataxia of lambs in Dagestan.]**—*Veterinariya, Moscow.* **33**, No. 1. pp. 38–42. [In Russian.] **2675**

In the last five years many cases of enzootic ataxia (swayback) have been observed in the lowlands by the Caspian Sea. Frequently lambs are born affected and die within a few days; others develop symptoms within 5–15 days of birth. Few survive. The liver and blood of affected lambs contain 10–15 times less copper than those of healthy ones. P.M., the most striking changes are hyperaemia of the meninges, small haemorrhages in the dura and, most characteristically, a softening of the white matter in both hemispheres of the brain. The brain often contains cavities filled with a translucent fluid. The grey matter may become atrophic and then the brain is transformed into a sac, containing 40–50 ml. of fluid. Besides changes in the c.n.s. the lymph nodes, liver, kidneys and heart are en-

larged; there are small haemorrhages in all organs. The lung is emphysematous. Histologically the picture is dominated by a degeneration of the nerve cells, and granular disintegration of the nerves of the hind legs.

—A. MAYR-HARTING.

ENNIK, G. C. (1955). Een ervaring met cobalt-gebrek bij melkvee. [**Cobalt deficiency in a herd of dairy cattle.**]—*Overdruk Cent. Inst. landbouwk. Onderz., Wageningen*. No. 255. pp. 7. [Reprinted from C.I.L.O. report, 1954, pp. 108-114.] [In Dutch. Abst. from English summary.] **2676**

Symptoms, milk yield and mineral content of the soil and pasture were described in cobalt deficiency in 8 cows.—M.G.G.

PEROLD, I. S. (1956). **Prevention of physiological disorders in farm animals by means of copper and cobalt salts soluble in alkaline waters.**—*Fmg S. Afr.* **31**, 6-8. **2677**

Animals on pasture deficient in copper and cobalt should receive a weekly dose of 0.05 g. of copper and 0.005 g. of cobalt. The simplest method of administration is in the drinking water. After 4 months' treatment with copper and cobalt salts [not specified], sheep on deficient pasture had 104 p.p.m. of copper in the liver; sheep treated with copper salts alone had 72 p.p.m.; and controls had 9 p.p.m. After 5 months' treatment 700 ewes produced 685 lambs, against 340 in the preceding year with 38 cases of swayback. Thirty-five lambs with swayback were successfully treated with these salts.—M.G.G.

BOSTICCO, A. (1956). L'influenza del titanio e del gallio sull'accrescimento ponderale dei polli. [**Influence of titanium and gallium on the growth of fowls.**]—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9**, 282-287. [English, French and German summaries.] **2678**

These trace elements had no toxic effect on the birds and they appeared to stimulate growth. This was more marked in the case of gallium which produced a greater body and liver-weight.—T.E.G.R.

NEWTON, O. F. (1955). Halisteresis carencial a evolucion ostomalacica y fracturas multiples en bovinos juvenes. [**Osteomalacia with multiple fractures in young cattle.**]—*Gac. vet., B. Aires*. **17**, 195-201. **2679**

The condition affected 245 of 1,300 young cattle at a breeding station, after a severe drought. It was attributed to disturbed mineral and vitamin metabolism in the dams

during pregnancy and lactation and also to mineral and vitamin deficiency in the pasture. There were symptoms of malnutrition, weakness, skeletal deformity, painful gait and fractures, particularly of the long bones. Many others were affected without apparent fractures. There was no further incidence after a change of pasture and the addition to the diet of lucerne and other grasses and bone meal.

—T.E.G.R.

MAINARDI, B. (1956). Su l'azione delle dosi urto di vitamina "A" nei suini. [**Action of large doses of vitamin A in pigs.**]—*Atti Soc. ital. Sci. vet.* Palermo, 1955. **9**, 382-385. [English and French summaries.] **2680**

An oily preparation containing 1,200,000 i.u. of vitamin per g. was administered *per os* to new-born piglets to prevent the toxic effects of unsaturated fatty acids in fish-liver oil with a low vitamin content. Best results were obtained with 400,000 units; higher doses gave poor or negative results. High mortality occurred in a group receiving 10,000,000 i.u. Marked changes associated with hypervitaminosis A were seen in the kidneys of dead subjects.—T.E.G.R.

MEINTZER, R. B. & STEENBOCK, H. (1955). **Vitamin D and magnesium absorption.**—*J. Nutr.* **56**, 285-294. **2681**

The absorption of magnesium was studied in rats on a diet low in calcium and phosphorus. The carbonate, phosphate and phytate were all well absorbed. The percentage absorption was increased by the addition of vitamin D; it was not affected by the addition of calcium carbonate and sodium bicarbonate but phytic acid reduced it slightly.—T.E.G.R.

ANON. (1956). **Analytical Methods Committee. Report prepared by the Vitamin-B₁₂ panel. The estimation of vitamin B₁₂.**—*Analyst*. **81**, 132-136. **2682**

The Analytical Methods Committee of the Society for Analytical Chemistry recommended the use of *Ochromonas malhamensis* as a test organism for estimating vitamin B₁₂ in foods. The technique and results of tests are described.—R.M.

PELLETT, P. L. & PLATT, B. S. (1956). **A dietary defect in maize developed during treatment with lime.**—*Nature, Lond.* **177**, 422-424. **2683**

The depressed growth rate observed in

rats on a diet of lime-treated maize is attributed to loss of nicotinic acid, riboflavin and thiamine during lime treatment.—T.E.G.R.

DOEGLAS, A. & TEUNISSEN, G. H. B. (1956). Pancreas-deficientie (atrofie) bij de hond. [**Pancreatic deficiency in dogs.**] — *Tijdschr. Diergeneesk.* **81**, 233-241. [In Dutch. English French and German summaries.] **2684**

A detailed clinical account, based on the observation and examination of 8 cases.

—R.M.

MONTEMAGNO, F. (1955). Antiistaminici di sintesi e metabolismo dei glicidi. [**Synthetic antihistamine and sugar metabolism.**] — *Acta med. vet., Napoli*. **1**, 27-43. [English, French German and Spanish summaries.] **2685**

Intramuscular injection of toxic doses of neo-antergan caused hypoglycaemic shock in dogs. This is attributed to inhibition of the adrenal and pituitary glands.—T.E.G.R.

CLEMENTS, F. W. (1955). A thyroid blocking agent as a cause of endemic goitre in Tasmania: preliminary communication. — *Med. J. Aust.* Sept. 3rd. 369-371. **2686**

A rise in the incidence of goitre in school-children in Tasmania, despite the oral administration of potassium iodide, coincided with an increase in milk consumption following the introduction of a free milk scheme. To meet the increased demand for milk, farmers grew increasing amounts of chou-moellier (thousand-headed kale) and fed it to the cows. Tests revealed the presence of an antithyroid substance in the milk of cows fed this plant, which was absent from the milk of cows fed other diets. Work on the identification of the antithyroid substance is in hand.—R.M.

AKÇAY, S. (1955). Yurdumuz hayvanlarında guvatri olaylari ve guvatının insan ve hayvanlardaki komparatif tetkiki. [**Comparative study of goitre in man and animals in Turkey.**] — *Vet. Fak. Derg.* **2**, 107-140. [In Turkish. Abst. from French summary.] **2687**

Thyroid glands of 177 slaughter cattle were examined histologically. Of these 125 were affected with hyperplastic, 9 with colloid

and 8 with exophthalmic goitre. The remaining 27 were normal. The aetiology of the disease is discussed. It is considered that iodine deficiency is not always the cause and the condition is one of metabolic disorder in which water, food, environment and heredity play an important part.—T.E.G.R.

HIBBS, J. W. & POUNDEN, W. D. (1956). **Milk fever can be prevented by feeding Vitamin D.** — *Mich. St. Univ. Vet.* **16**, 93-94 & 138. **2688**

Of 48 cows with histories of milk fever, 14 were given 20-30 million units of vitamin D daily for 5-7 days before parturition. There were no symptoms. Milk fever developed in one cow out of 12 fed 10 million units daily, and in 14 of 22 controls. No harmful effects result from feeding large amounts of vitamin D, provided that the period of treatment is limited to 7 days.—M.G.G.

SETO, K., TSUDA, T. & UMEZU, M. (1955). The mechanism of the ketone bodies production with rumen epithelium. I. The ketone bodies production from volatile fatty acids with rumen epithelium and the influence of substances concerned with the citric acid cycle on their production.—*Tohoku J. agric. Res.* **6**, 91-98. [In English.] **2689**

An account of *in vitro* studies on ketone body production from volatile fatty acids and various tissues—mainly liver, kidney and rumen epithelium.—T.E.G.R.

ROGERS, J. A. (1956). **Intramuscular cortef in bovine ketosis.** — *J. Amer. vet. med. Ass.* **128**, 304-307. **2690**

"Cortef" is a proprietary aqueous suspension of hydrocortisone, containing 50 mg. per ml. R. studied its action on normal cows and in the treatment and prevention of ketosis. Cows with ketosis improved after a single i/m inj. of 690 mg. hydrocortisone. Twelve cows, 6 of which had had ketosis after the previous calving, were each given a similar dose followed at intervals of 3-5 days by 2-5 doses of 150-200 mg., during the period just before and immediately after calving; none developed ketosis.—R.M.

See also absts. 2733 (salmonella in bone- and fish-meal); 2753 (report, New Zealand); 2760 (book, antibiotics in nutrition).

DISEASES, GENERAL

WEIS, J. (1956). Ferkelgrippe und chronische Schweineseuche, Ferkeldurchfall. [**Influenza, chronic pneumonia and diarrhoea in piglets.**] — *Schweiz. Arch. Tierheilk.* **98**, 66-74.

[English, French and Italian summaries.] **2691**

W. discussed the aetiology, differential diagnosis, symptoms, P.M. findings and treatment of these affections.—M.G.G.

DILLON, R. (1956). **Corticosteroid in the treatment of certain equine lamenesses.** — *Vet. Med.* **51**, 191-192. 2692

Intra-articular injection of 25 mg. of fluorohydrocortisone has given encouraging results in the treatment of traumatic arthritis and tenosynovitis in horses.—M.G.G.

CHANDRASEKHARAN NAIR, K. P. (1955). **Bovine lymphangitis in Madras State. II.**—*Ceylon vet. J.* **3**, 97-104. 2693

A general account.—T.E.G.R.

EPSTEIN, H. (1955). **Phylogenetic significance of *Spina bifida* in zebu cattle.** — *Indian J. vet. Sci.* **25**, 313-316. 2694

A general review of spina bifida in zebu cattle and other animals, in which it is concluded that it occurs independently of mechanical factors, and though heritable appears to be a domestication feature providing no evidence to trace the wild ancestors of the zebu.

—W. E. PARISH.

CLARKE, E. A. & FILMER, D. B. (1956). **Hogget rearing.**—*N.Z. J. Agric.* **92**, 115, 117, & 119-120. 2695

"Hogget ill thrift" is a peculiar condition characterized by failure to put on weight on apparently abundant pasture. It occurs only during the autumn, and its onset coincides with a fresh growth of pasture. While it may be associated with heavy trichostrongyle infestation, this association is not causal and the disease may occur in the absence of worm parasites: neither has any bacterial agent been incriminated. There is some evidence that palatability of feed may be a related factor and grazing on mature grass is found to reduce the incidence of the disease.

—C. C. BANNATYNE.

MARZIALETTI, G. (1955). **Grave forma di epatite a focolai nel suino. [Hepatitis in a pig.]** — *Nuova Vet.* **31**, 173-176. 2696

Chronic interstitial inflammation with necrotic foci, eosinophile infiltration and Kupffer cell degeneration were observed in the liver of an otherwise healthy slaughter pig.

—T.E.G.R.

EREMEEV, M. N. (1956). **[Hepatitis of piglets.]** — *Veterinariya, Moscow.* **33**, No. 1. pp. 49-53. [In Russian.] 2697

The aetiology of this disease is not clear. It is not infectious but infections may be superimposed. It occurs only in autumn and winter, usually in connexion with some upset of the normal routine. The case mortality is

100%. Clinically it appears as toxicosis. The animals refuse food, go into clonic spasms and die in asphyxia within a few hours. Chronic cases do not occur. P.M., the colour of the liver varies; parts are normal, others cherry-red with hyperaemia, yet others grey with necrosis. There is a gelatinous yellow exudate around the glottis and trachea. No characteristic changes occur in other organs. No specific treatment or prophylaxis is known. The use of iodine *per os*, or of urotropine plus calcium chloride, parenterally, has been suggested.

—A. MAYR-HARTING.

LARSSON, E. L. (1955). **Om skaksjuka hos smågrisar. ["Trembling" in piglets.]** — *Svenska Svinavelsfören. Tidskr.* No. 9. 149-151. [In Swedish.] 2698

"Trembling" in piglets was previously considered, in Sweden, to be a hereditary condition, but observations in southern Sweden have failed to confirm this. L. described three instances in which the condition occurred in litters following the introduction of a new boar to a breeding station, and where other boars which had previously sired only healthy piglets were subsequently responsible for litters in which "trembling" occurred. This ceased after the elimination of the new boar from service. The condition was not reproduced in the offspring of full sibs, both of which were affected. L. considers that "trembling" is probably caused by a virus, resistance to which depends upon individual constitution.

—F.E.W.

HARDING, H. P. & OWEN, L. N. (1956). **Eosinophilic myositis in the dog.**—*J. comp. Path.* **66**, 109-122. [Authors' conclusions modified.] 2699

Seven cases were described. Blood counts of unaffected relations of affected dogs indicated that high eosinophile levels may occur in clinically normal animals. The aetiology and treatment were discussed. While the cause remains obscure, adrenocorticotrophic hormone was found to be a promising therapeutic agent.

BAUER, H. (1955). **Das Zungenschlagen der Rinder als Erbfehler. Ein tierärztlich-züchterischer Beitrag über Umfang des Vorkommens, Beziehungen zu Mangelfutter, Erblichkeit und Massnahmen der Zuchtverbände. [Tongue-wagging in cattle as a hereditary defect.]** — *Fortpflanzung.* **5**, 140-143. [English summary.] 2700

Tongue-wagging occurs almost exclusively in mountain cattle and is very common in certain districts of southern Germany. It was considered to be a vice, brought about by nutritional deficiency (mainly copper and cobalt). B. stated that 75% of cases could be cured by change of diet. There was some evidence of hereditary predisposition to the condition.—W. R. BETT.

See also absts. 2762 (textbook, veterinary surgery); 2763 (textbook, veterinary ophthalmology).

POISONS AND POISONING

BRANDT, A. (1956). Über Vergiftungen bei Schweinen mit besonderer Berücksichtigung der Differentialdiagnose gegenüber Schweinepest und anderen anzeigepflichtigen Seuchen. [Poisoning in pigs and differential diagnosis from swine fever and other notifiable diseases.]—*Mh. VetMed.* 11, 5-11 & 31-36. 2702

B. described poisoning of pigs by phosphorus, arsenic, herring brine, salt, bleaching powder, carbolic acid, eunarcon [a barbiturate], mouldy barley meal, sour milk, bee-stings, and also *Clostridium botulinum* intoxication caused by meat from a knacker's yard, and arsenical poisoning occurring simultaneously with swine fever.—M.G.G.

PERKINSON, J. D., JR., WHITNEY, I. B., MONROE, R. A., LOTZ, W. E. & COMAR, C. L. (1955). Metabolism of fluorine 18 in domestic animals.—*Amer. J. Physiol.* 182, 383-389. 2703

Radioactive fluorine in sufficient quantities to allow study for up to 10 hours in duration was given by capsule or injected intravenously into sheep, cattle, and laying hens. It was shown that absorption in the sheep and cow is rapid; about 1% of the dose represented the peak blood value which occurred at about 2-5 hours after injection. Some of the ingested F¹⁸ was deposited in various parts of hen's eggs and in cow's milk.

—D. S. PAPWORTH.

O'MOORE, L. B. (1955). The nitrate hazard in freshly lifted mangolds.—*Irish vet. J.* 9, 292-293. 2704

A case is reported of nitrate poisoning occurring in 3 cows as a result of consuming freshly-lifted mangolds. The administration of 50 ml. of 4% methylene blue resulted in complete recovery within 2 days. Analysis of a mangold typical of those consumed, revealed a nitrate level of 2.5%. It is calculated that an

QUAGLIO, G. (1956). Studio istopatologico di alcuni casi di cirrosi epatica nella nutria (*Myocastor coypus*). (Histopathology of cirrhosis of the liver in nutria.)—*Atti Soc. ital. Sci. vet.* Palermo, 1955. 9, 389-393. [English and German summaries.] 2701

A description of the microscopic changes in the livers of seven nutria with biliary cirrhosis.—T.E.G.R.

intake of 60 lb. of such mangolds could result in the toxic symptoms observed.

—D. S. PAPWORTH.

BULLINGTON, T. H., BYRD, C. E. & HARRIS, T. W. (1955). Urea poisoning in the bovine.—*N. Amer. Vet.* 36, 107-109. 2705

Three separate case histories are reported of illness and death occurring in dairy cattle as a result of being fed a mixed feed which contained urea. In each subsequent investigation it was proved or concluded that poor mixing of the urea with the feed was responsible for typical symptoms of urea poisoning.

—D. S. PAPWORTH.

SWANSON, M. H., WAIBEL, P. E., HELBACKA, N. V. & JOHNSON, E. L. (1956). Shell egg quality as affected by Arasan in the diet.—*Poult. Sci.* 35, 92-95. [Authors' summary modified.] 2706

Low dietary levels (10-50 p.p.m.) of "Arasan-SFX", an organic sulphur compound used as a seed dressing, gave reduced shell thickness and albumen firmness. Many eggs were misshapen, and a significant proportion were laid prematurely with little or no shell deposition. At levels above 100 p.p.m. practically no hard-shelled eggs were produced. The possibility of confusing this condition with certain respiratory diseases which affect egg quality was suggested.

GUILHON, J. (1955). L'ergotisme des animaux domestiques. [Ergot poisoning in domestic animals.]—*Rev. Path. gén. comp.* 55, 1467-1478. 2707

G. gave a historical outline of ergot poisoning and detailed its manifestations in various species of domestic animals. He discussed the various lesions of this type of poisoning; prognosis; diagnosis; and methods of treatment.—D. S. PAPWORTH.

WALKER, D. G. & WIRTSCHAFTER, Z. T. (1956). **Estrogenic inhibition of fetal resorption in lathyrism.**—*J. Nutr.* **58**, 161-173. [Authors' summary modified.] **2708**

A resorptive process interrupts foetal development on the 18th day of gestation in pregnant rats fed a diet containing seeds of *Lathyrus odoratus*. Oestrogenic hormones, particularly when administered in combination, gave protection against the lathyrus factor.

GUILHON, J., OBRY, J. & QUEINNEC, G. (1955). Reproduction expérimentale du syndrome hémorragique des jeunes bovidés bretons par ingestion de fougère aigle de la région parisienne. [Experimental bracken poisoning in young cattle.]—*Bull. Acad. vét. Fr.* **28**, 457-462. Discussion: p. 463. **2709**

Three calves were each given one kg. of green bracken daily until death occurred within 6-9 weeks. Symptoms and P.M. lesions were similar to those of natural cases of bracken poisoning.—M.G.G.

CASE, A. A. (1956). **Nightshade poisoning.**—*Sthwet. Vet.* **9**, 140-143. **2710**

Some cases of fatal poisoning in cattle and pigs are mentioned, caused by *Datura stramonium*, *Solanum rostratum*, *S. carolinense*, tomato plants and sprouting potato seed. Symptoms and P.M. lesions of nightshade poisoning and the cat eye biotest are described.—M.G.G.

BOLSHAKOV, I. G. (1955). [Mass illness in sheep resulting from ingestion of *Ranunculus* spp.]—*Sborn. nauch. Trud. Leningr. Inst.*

Usovershenst. vet. Vrach. **10**, 204-206. [In Russian.] **2711**

Plant poisoning, apparently due to *Ranunculus* spp. (not defined), affected large numbers of sheep in the spring of 1949 in the Alma-Ata region. Mortality was high and the condition was at first mistakenly diagnosed as bradsot. The pasture plants were not studied in detail.—R.M.

HAWK, W. (1956). **Hematuria in dairy heifers probably due to a plant toxin.**—*J. Amer. vet. med. Ass.* **128**, 261-262. **2712**

There was a high proportion of *Thlaspi arvense* in the hay fed to 3 heifers with haematuria. The condition disappeared a few days after hay containing less of the plant was given. Haematuria was not induced in 4 goats and a ewe fed exclusively on the hay *ad libitum* for 6 weeks.—M.G.G.

OBARA, J., NAKAJIMA, H. & ISHII, S. (1955). [Studies on the brain cholinesterase activity in animals poisoned with "parathion".]—*Jap. J. vet. Sci.* **17**, 109-114. [In Japanese. Abst. from English summary.] **2713**

The authors examined various brain homogenates for cholinesterase activity before and after poisoning by parathion, using a modified Hesterin's ferricacethydroxamic reaction. The use of this method for P.M. diagnosis of parathion poisoning is suggested provided that the homogenates are diluted in accordance with the normal cholinesterase activity of the brain of each species. It was shown that the method is valid for 6-10 days after death.—D. S. PAPWORTH.

See also abst. 2752 (report, Northern Ireland).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease).

SUVOROV, K. R. & MINAEV, I. M. (1955). [Use of antibiotics on a chicken farm.]—*Veterinariya, Moscow.* **32**, No. 8, pp. 61-63. [In Russian.] **2714**

The authors fed the sodium salt of penicillin, at a conc. of 15-20 mg. per kg. food, to chicks during the first 30 days of life. After 30 days, biomyacin or the mycelial mass left over from biomyacin production was used. Losses from gastro-enteritis were greatly reduced, and it was stated that biomyacin was a useful therapeutic agent in laryngotracheitis.

—A. MAYR-HARTING.

I. MOSIN, V. V. (1953). [New method for procaine nerve-block—epileptical block.]—

Veterinariya, Moscow. **30**, No. 1, pp. 33-37. [In Russian.] **2715**

II. KRUILOVA, N. A. (1956). [Resorption of catgut under conditions of epileptical procaine anaesthesia of the abdominal nerves, in dogs.]—*Ibid.* **33**, No. 4, pp. 59-61. [In Russian.] **2716**

I. M. described a method of anaesthetizing the splanchnic nerve and sympathetic trunk by introducing procaine soln. through a needle inserted in the epileptical tissue at the level of the last rib. There are details of the technique used for horses and cattle, and modifications of the basic technique required for its use in the other domesticated animals.

M. stated that bilateral epipleural block was highly effective in the treatment of spasmodic colic, gastro-enteritis, cystitis, peritonitis, metritis, hepatitis, nephritis and post-castration complications.

II. K. studied the resorption of different types and sizes of catgut 20–30 days after gastrotomy, cystotomy, enterotomy and other operations in dogs. The extent of resorption was compared with that observed in dogs subjected to similar operations, but in which the splanchnic nerves and sympathetic trunks had been anaesthetized by bilateral epipleural procaine block as described by Mosin [see preceding abst.]. In the latter, the resorption of catgut was delayed by about 10 days. K. concluded that by employing epipleural block (in addition to general anaesthesia) it was safe to use catgut one or two sizes smaller than that normally used.—R.M.

GANDAL, C. P. (1956). **Satisfactory general anesthesia in birds.** — *J. Amer. vet. med.*

Ass. **128**, 332-334. [Author's summary modified.] **2717**

In 122 clinical and experimental trials on birds ranging from canaries to peacocks, safe, satisfactory surgical anaesthesia was readily induced by equithesin, 2.5 ml./kg. injected i/m. [500 ml. of equithesin contains 21.3 g. chloral hydrate, 4.8 g. pentobarbital, and 10.6 g. magnesium sulphate in aq. soln. of propylene glycol with 9.5% alcohol.]

MOSBY, H. S. & CANTNER, D. E. (1956). **The use of avertin in capturing wild turkeys and as an oral-basal anaesthetic for other wild animals.**—*Stwest. Vet.* **9**, 132-136. **2718**

From preliminary experiments avertin (bromethol) is considered to hold promise as an orally administered drug both for capturing and anaesthetizing wild animals and birds. The dosage is about 0.06–0.09 ml./lb. body wt. A technique is described for irrigating the crops of turkeys which have received an overdose.—M.G.G.

See also absts. 2479 (diagnosis of anthrax and antibiotics); 2499 (resistance in vitro of *Pf. whitmori* to antibiotics); 2505-2506 (avian *E. rhusiopathiae* infection); 2518 (streptomycin in chronic pullorum disease); 2557 (isoniazid in actinobacillosis); 2568 (suramin); 2571-2572 (trichomoniasis); 2574-2576 (coccidiosis); 2577-2580 (piroplasmosis); 2581 (Theileria infection); 2608 (effect of antibiotics and sulphadimidine on porcine pneumonia virus); 2628-2633 (insecticides); 2642 (phenothiazine); 2650 & 2652 (treatment of tumours); 2732 (antibiotics for food preservation); 2760 (book, antibiotics in nutrition); 2764 (book, radioisotopes).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

RIEDELSE, M. L. & FOLK, G. E., JR. (1956). **Serum magnesium changes in hibernation.**—*Nature, Lond.* **177**, 668. **2719**

The Mg content of the serum in hibernating bats was 50% higher than in active bats. Serum Mg increased after only 1–2 hours of hibernation, and decreased within one hour after arousal from hibernation.—M.G.G.

GOODWIN, R. F. W. (1956). **Division of the common mammals into two groups according to the concentration of fructose in the blood of the foetus.**—*J. Physiol.* **132**, 146-156. [Author's summary modified.] **2720**

Foetal blood from the horse, pig, sheep, ox, goat, whale, dog, cat, ferret, g. pig, rabbit and rat was examined for the presence of fructose. Seliwanoff-positive material (taken as fructose) was present in high concentration in samples from the horse, pig, sheep, ox, goat and whale. In the remaining species it was present only in traces and at concentrations comparable to those found in the blood of adults. It is suggested that, pending a much wider survey of the mammalian Orders, the presence of fructose at high concentration in the foetal blood of land mammals at term is a peculiarity of ungulates.

BENSON, G. K. & FOLLEY, S. J. (1956). **Oxytocin as stimulator for the release of prolactin from the anterior pituitary.**—*Nature, Lond.* **177**, 700. **2721**

Mammary involution was markedly retarded in lactating rats, from which the litters had been removed on the 4th day of lactation, and which thereafter until the 13th day had received i/p 0.25–1.5 i.u. of oxytocin 3 times daily.—M.G.G.

GLASCOCK, R. F., DUNCOMBE, W. G. & REINIUS, L. R. (1956). **Studies on the origin of milk fat. II. The secretion of dietary long-chain fatty acids in milk fat by ruminants.**—*Biochem. J.* **62**, 535-541. [Authors' summary modified.] **2722**

Tritium-labelled stearic acid was administered orally, either as free acid or as triglyceride, to lactating goats and to a cow, and the appearance of radioactivity in milk fat and its distribution in milk constituents were studied. Measurable activity was found in the milk fat 4 hours after administration of labelled fat, the maximum specific activity occurring within 24 hours. Activity was still detectable in milk fat secreted up to 37 days after administration. Up to 59% of the ingested activity ultimately

appeared in the milk fat. The results suggest that the contribution of dietary fat to milk fat was not more than about 25%, and that the characteristic short-chain acids of the milk fat of ruminants do not arise mainly by degradation of long-chain acids.

VALDINA, G. (1956). Osservazioni sul contenuto in istamina totale della bile bovina. [Total histamine content of bovine bile.]—*Atti. Soc. ital. Sci. vet.* Palermo, 1955. 9, 425-427. [English and French summaries.] 2723

Observations carried out on 30 slaughter cattle (12 healthy and 18 with disease of the liver or other organs) led to the conclusion that histamine is not excreted in the bile to any appreciable extent.—T.E.G.R.

DENTON, D. A. (1956). The effect of Na^+ depletion on the $\text{Na}^+ : \text{K}^+$ ratio of the parotid saliva of the sheep. — *J. Physiol.* 131, 516-525. [Author's summary modified.] 2724

A sheep with a parotid fistula secreted 3 l. of alkaline saliva daily. The Na^+ conc. was approx. 180 milli-equivalents (m. eq.)/l. and the K^+ conc. 10 m. eq./l. ($\text{Na}^+ : \text{K}^+$ ratio=18.) With a normal diet, and adequate replacement of Na^+ , the sheep remained in good condition indefinitely. If the replacement were withheld, the saliva decreased by approx. one l. per day, the composition of the parotid secretion changed. Na^+ conc. fell to 60 m. eq./l., and K^+ conc. rose to 120 m. eq./l. ($\text{Na}^+ : \text{K}^+$ ratio=0.5.) There was a commensurate relation between the amount of Na^+ depletion and the $\text{Na}^+ : \text{K}^+$ ratio of the parotid saliva. During depletion the phosphate conc. of the saliva rose. The total amount of phosphate secreted daily was unchanged. During very high intake of Na^+ , the $\text{Na}^+ : \text{K}^+$ ratio of the parotid saliva rose.

IMABAYASHI, K. -I., KAMETAKA, M. & HATANO, T. (1955). Studies on the digestion in the domestic fowl, I. "Artificial anus operation" for the domestic fowl and the passage of the indicator throughout the digestive tract. — *Tohoku J. agric. Res.* 6, 99-117. [In English.] 2725

Studies were carried out on 7 domestic fowls. Each bird was provided with an "artificial anus" by communicating the rectum with the exterior—by-passing the cloaca. The time which elapsed between the ingestion of food and its excretion as faeces was noted.

—T.E.G.R.

SMITH, R. N. (1956). Fusion of the epiphyses of the limb bones of the sheep.—*Vet. Rec.* 68, 257-259. [Author's summary modified.] 2726

The results are given of a preliminary survey of the times of fusion of the limb bones of the sheep. The technique used was radiography, and the sheep were of the Clun breed, kept under conditions typical for a low-land flock.

HÖHN, E. O. (1956). Seasonal recrudescence of the thymus in adult birds. — *Canad. J. Biochem. Physiol.* 34, 90-101. 2727

The thymus, bursa of Fabricius, gonads and oviduct or vas deferens and seminal glomus from a number of mallards, house sparrows and robins were collected, weighed and sectioned for histological examination. The thymus of adult birds was markedly enlarged following the breeding season. Histologically the enlarged thymus tissue was similar to the uninvolved thymus of immature birds. The bursa of Fabricius was not changed. Evidence is presented of enlarged thymus in other avian species encountered during the study. The enlargement of the thymus in the post-breeding season suggests that this gland performs some function which does not involve other parts of the lymphatic tissue. Castration or unilateral adrenalectomy in mallards failed to induce thymic enlargement out of season.

—A. S. GREIG.

BILLINGHAM, R. E. & RUSSELL, P. S. (1956). Incomplete wound contracture and the phenomenon of hair neogenesis in rabbits' skin. — *Nature, Lond.* 177, 791-792. 2728

Fine, unpigmented hairs were observed to grow from the surface of the incompletely contracted wounds of rabbits within 40-50 days after operation. The wounds had been kept under dressings until they were completely epithelialized. The only striking anatomical imperfection of the new hair follicles was their apparent lack of arrectores pilorum muscles.—M.G.G.

HILLARP, N. -Å., NILSON, B. & HÖGBERG, B. (1955). Adenosine triphosphate in the adrenal medulla of the cow. — *Nature, Lond.* 176, 1032-1033. 2729

It is shown that large amounts of adenosine triphosphate (ATP) may be isolated from the adrenal medulla of the cow and this may be a source for large-scale preparation of ATP. Nearly all the ATP is localized in those granules containing adrenaline and noradren-

aline in the cytoplasm of the medullary cell, and no appreciable breakdown occurs if these granules are isolated and suspended in 0.3M sucrose solution at 4°C. for several days. In

seven experiments 520, 445, 585, 500, 420, 595, and 400 mg. (free acid) ATP per 100 g. wet weight of cow medulla were isolated.

—D. S. PAPWORTH.

See also abst. 2761 (comparative endocrinology of vertebrates).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

KUHLMANN, W. (1956). Ergebnisse der bakteriologischen Fleischuntersuchung bei Leukose und Distomatose. [Bacteriological meat inspection of slaughter animals with leucosis and fascioliasis.]—*Arch. Lebensmittelhyg.* 7, 49-50. 2730

Salmonella were demonstrated in 16 out of 663 specimens from cattle with leucosis, and in 23 of 434 specimens from cattle and sheep with fascioliasis.—M.G.G.

TURNER, C. W. (1956). Biological assay of beef steer carcasses for estrogenic activity following the feeding of diethylstilbestrol at a level of 10 mg. per day in the ration.—*J. Anim. Sci.* 15, 13-24. 2731

Two highly sensitive methods of assay failed to reveal oestrogen residues in the tissues of cattle fed diethylstilboestrol.

—T.E.G.R.

INGRAM, M., BARNES, E. M. & SHEWAN, J. M. (1956). Problems in the use of antibiotics for preserving meat and fish. — *Food Sci. Abstr.* 28, 121-136. 2732

A review article in which the authors discussed the various methods of preserving meat and fish with antibiotics, and the implications for public health.—M.G.G.

ROHDE, R. & BISCHOFF, J. (1956). Die epidemiologische Bedeutung salmonellainfizier-

ter Tierfuttermittel (insbesondere Knochen-schrot und Fischmehl) als Quelle verschiedener Lebensmittelvergiftungen. [Significance of salmonella-infected animal feeding-stuffs (especially bone-meal and fish-meal) as a source of food-poisoning.] — *Zbl. Bakt. I. (Ref.)* 159, 145-164. 2733

Uncommon species of *Salmonella* have been isolated from animal feeding-stuffs at about the same time as outbreaks of gastro-enteritis in man have occurred, caused by the same species. Out of 270 samples of imported fish-meal, salmonella were demonstrated in 43. Compulsory examination of all imported animal feeding-stuffs for salmonella is recommended.—M.G.G.

BENTLEY, E. W. & ROWE, M. (1956). Pival, an anti-coagulant rodenticide. — *J. Hyg., Camb.* 54, 20-27. [Authors' summary modified.] 2734

For *Rattus norvegicus*, "Pival" (2-pivalyl-1, 3-indandione) at 0.025% was less toxic than warfarin at 0.005% when ingested for periods up to 72 hours. It was also less acceptable in dry cereal bait. For *R. rattus*, "Pival" and warfarin at 0.025% were about equally toxic and equally acceptable. Young *R. rattus* appeared to be more resistant than heavier rats to both poisons. The fungicidal properties of "Pival" were discussed.

See also absts. 2515 (bacterial rodenticides); 2534 (infection in man with Strain 19); 2542 (probable transfer of *L. canicola* from pigs to man); 2591 (rabies); 2614 (canine virus hepatitis transmissible to man?); 2637 (sewage and cysticercosis); 2754 (report, Union of South Africa).

REPRODUCTION AND REPRODUCTIVE DISORDERS

WISHART, D. S. (1956). Recent advances in artificial insemination.—*Aust. vet. J.* 32, 42-46. 2735

Methods of selecting and breeding bulls for use in A.I. are discussed briefly. Details are given of equipment and technique for the electro-ejaculation of the bull, and a method of deep freezing and storage of semen is described.—I. C. A. MARTIN.

ALLEN, C. J. & CHAMPION, L. R. (1955). Competitive fertilization in the fowl.—*Poult. Sci.* 34, 1332-1342. 2736

Equal concentrations of spermatozoa from cocks of different breeds were pooled and the semen used for fertility trials. In 2 of 7 experiments the number of spermatozoa per insemination was changed each week while in the remaining 5 it was kept constant throughout. The resulting progeny were classified according to plumage and/or comb type at 1 day, 2 weeks and 4 weeks of age. A comparative study of the semen characteristics of the different breeds was made and the correlations between motility, abnormality and fertility of spermatozoa were established. It

was concluded that there is no breed affinity between spermatozoa and ova.—T.E.G.R.

MILLAR, P. G. (1956). **Observations on the presence of a haemolysin in bovine semen.**—*Brit. vet. J.* **112**, 106-115. [Author's summary copied *verbatim*.] **2737**

It has been noted that a haemolytic substance may be present in bovine semen. This observation may have some future value either in the evaluation of the genital health of bulls or in the assessment of individual samples of semen intended for storage at artificial insemination centres.

MASTRONARDI, M. (1955). **L'ovaia della cavalla. [The ovaries of the mare.]**—*Acta med. vet., Napoli*. **1**, 57-70. [English and French summaries.] **2738**

A comparative study of the anatomical and physiological development of the mare's ovary from the foetal stage to sexual maturity. —T.E.G.R.

SKJERVEN, O. (1956). **Phosphatase, fat, and carbohydrate content of normal bovine endometrium.**—*Fertil. & Steril.* **7**, 31-43. **2739**

S. examined, by histochemical methods, samples of endometrium obtained by biopsy from cows at various stages of the oestrous cycle. [See also *V.B.* **24**, 2534 & **25**, 529.] —R.M.

BASSETT, E. G. & PHILLIPS, D. S. M. (1955). **Some observations on the pelvic anatomy of ewes with vaginal prolapse.**—*N. Z. vet. J.* **3**, 127-137. **2740**

Dissection techniques previously described by the authors [*V.B.* **25**, 3437] were used to study the reproductive tract and attachments of 44 ewes with a previous history of prolapse. Measurements of tract displacement, vaginal circumference and abdominal pressure were made during life on 50 normal pregnant ewes and 50 with history of prolapse. A technique involving the deep freezing of whole skinned carcasses was also employed in the study of pelvic anatomy. Ewes with history of prolapse tended to have more elongated tract attachments and a more relaxed vagina than normal ewes, but much of the data collected could not be correlated with the condition under investigation.—C. C. BANNATYNE.

BIGGERS, J. D., CLARINGBOLD, P. J. & HARDY, M. H. (1956). **The action of oestrogens on the vagina of the mouse in tissue culture.**—*J. Physiol.* **131**, 497-515. [Authors' summary modified.] **2741**

Explants obtained by transverse sectioning of the vagina of immature mice were cultivated in hanging drops of a medium comprising chick embryo extract and capon plasma. Addition of natural and synthetic oestrogens and certain of their conjugated forms caused the vaginal epithelium to proliferate, stratify and keratinize. The unorganized epithelial cells of the outgrowth did not undergo this change.

The response was identical in all main features with that of the vagina of immature mice to the s/c administration of oestrone. The effective dose of oestrogen in tissue cultures was considerably lower than that required in ovariectomized mice.

BARKER, C. A. V. (1956). **Some observations on testicular calcification in bulls.**—*Canad. J. comp. Med.* **20**, 37-50. [English and French summaries.] **2742**

Observations were made by X-ray, microscopic examination of tissue and chemical analysis of calcified foci. In this survey 29.7% of all bulls radiographed had some degree of calcification of the seminiferous tubules. No relationship could be established between breed, age, diet or breeding records and the occurrence of calcification.

—THOMAS MOORE.

ROLDÁN, R. R. (1955). **Los antibioticos en la esterilidad bovina. [Antibiotics in treatment of bovine sterility.]**—*Gac. vet., B. Aires*. **17**, 206-218. **2743**

Uterine irrigation with a combination of penicillin and dihydrostreptomycin in distilled water or normal saline soln. was carried out at oestrus (within 48 hours after service) and also between oestral periods. In subjects with endometritis and irregular sexual cycle 73% success was achieved when treatment was administered between oestral periods. Treatment was ineffective in subjects with pyometra.—T.E.G.R.

MAWSON, C. A. & FISCHER, M. I. (1956). **Zinc in aspermic human semen.**—*Nature, Lond.* **177**, 190. **2744**

A specimen of semen from a clinically normal man was completely aspermic and its zinc content did not differ significantly from normal.—T.E.G.R.

MATHER, G. W. (1956). **Achondroplasia in a litter of pups.**—*J. Amer. vet. med. Ass.* **128**, 327-328. **2745**

Four of a litter of 6 Scottish Terrier puppies were affected. They were unable to

stand or walk. The calcium and phosphorus content of the serum was higher than normal. P.M. examination revealed a flattened mal-formed thorax and enlarged costosternal articulations.—M.G.G.

BELONJE, C. W. A. (1956). **The influence of running a stallion with non-pregnant Thoroughbred mares.**—*J.S. Afr. vet. med. Ass.* **27**, 57-60. [Author's conclusion slightly modified.] **2746**

See also absts. 2475 (streptococci isolated from genital system of mares and aborted foetuses); 2521-2539 (brucellosis); 2545 (vibrio and bovine sterility); 2567 (dourine); 2570-2572 (trichomoniasis); 2598 (abortion in sheep from contaminated sheep pox vaccine); 2603 (bovine catarrhal vaginitis); 2648 (bovine uterine carcinoma); 2720 (concentration of fructose in foetal blood).

ZOOTECHNY

SLEN, S. B. & WHITING, F. (1956). **Wool growth in mature range ewes as affected by stage and type of pregnancy and type of rearing.**—*Canad. J. agric. Sci.* **36**, 8-13. [Authors' abst. modified.] **2747**

Wt. of clean wool, av. fibre length, and density of fibre were significantly higher from ewes with single lambs than from ewes with twins during pregnancy and lactation. The level of nutrition determined the stage of pregnancy at which significant differences began to occur. Bi-monthly weights of clean wool indicated that both early and advanced pregnancy, and lactation significantly reduced growth. Av. fibre thickness was significantly greater in ewes with singles than in ewes with twins during advanced pregnancy on the lower plane of nutrition. Early and late pregnancy, and lactation, significantly decreased av. fibre thickness on both levels of feeding. Production of clean wool (8 months' growth) from ewes with singles was 19% greater than that from ewes with twins on the lower plane of nutrition. Although the difference was 11% on the higher plane it was not significant. Irrespective of the level of feeding, the av. production values within types of pregnancy were reduced to similar levels by the end of lactation.

RYDER, M. L. (1956). **Observations on the fleeces of experimental sheep receiving daily doses of sodium fluoride.**—*J. agric. Sci.* **47**, 187-190. [Abst. from author's summary.] **2748**

Wool and skin samples from 4 sheep treated daily for a year with 0.2 or 0.6 mg. per kg. of sodium fluoride were compared with

those from 2 controls. Wool was shorter, finer, less crimped and less lustrous; less wool grease was produced, and in certain samples from one sheep tenderness of the fibres was observed. Capsules associated with the wool follicles frequently occurred; the possible stages in their development are described, with 4 photomicrographs. No other abnormalities in the skin and follicles were observed. Follicle counts suggested that the percentage of shedding fibres was not increased. Information was gained about normal changes in the percentage of shedding fibres during the year.

HUTCHINSON, J. C. D. (1956). **Control of seasonal variation in the egg production of hens.**—*Nature, Lond.* **177**, 795-796. **2749**

There was a marked fall in the egg production of experimental fowls after length of artificial daylight had been reduced from 23½ hours to 12 hours daily.—M.G.G.

WILSON, W. O. (1956). **Identifying non-laying chicken hens.**—*Poult. Sci.* **35**, 226-227. **2750**

The concentration of carotenoid pigment in the serum of non-laying hens was significantly higher than in controls.—M.G.G.

CANAWAY, R. J., RAYMOND, W. F. & TAYLER, J. C. (1955). **The automatic recording of animal behaviour in the field.**—*Electron Engng.* March. pp. 102-105. **2751**

A description of an instrument which records the movements of grazing cattle. The apparatus is mounted on a leather harness worn by the animals under experiment.

—T.E.G.R.

See also abst. 2765 (breeding beef cattle for unfavourable environments).

REPORTS

NORTHERN IRELAND. (1955). **Annual Report 1952 & 1953, Veterinary Research Division.**

In Research and Experimental Record of the Ministry of Agriculture Northern Ireland 1952-53. 3, Part II. pp. 217-223. [Belfast: H. M. Stat. Off. 7s. 6d.] **2752**

Of 853 pigs examined P.M. during the two years, the majority had died from some type of PNEUMONIA or SCOURS. A liver condition investigated was due to PITCH POISONING.

3,699 specimens from poultry were examined in 1952 and 5,721 in 1953. The more important diseases mentioned are shown below with figures of percentage of total cases for each year in parentheses. FOWL PARALYSIS and LEUCAEMIA (15·5/15·02); MANAGEMENT AND DIETETIC ERRORS (11·9/10·03) TUMOURS (8·1/6·06); CAECAL COCCIDIOSIS (7·2/8·89); DUODENAL COCCIDIOSIS (1·1/2·04); PULLORUM DISEASE (2·4/4·04); PERITONITIS (4·3/4·19); TB. (1·5/0·79); NEPHRITIS (3·3/3·56); and ROUND HEART DISEASE (2·9/1·34). PULLORUM DISEASE testing revealed 0·27% positive in 529,018 samples in 1952 and 0·24% in 589,871 in 1953.

The Bacteriological Laboratory has produced annually, since 1950, an average of some 21,500 doses of *Brucella abortus* vaccine. The position regarding control of the disease is considered satisfactory. JOHNE'S DISEASE complement-fixation tests revealed 10 out of 218 positive and 19 weakly positive in the year 1952, and 43 out of 500 positive and 30 weakly positive in 1953. Routine work included diagnosis of disease and helminth parasites. Details are given of the various specimens examined. Positive findings for the two years were ANTHRAX 9/12; TB. sputa 23/10; TB. milk 12/14; and SHEEP SCAB 0/1. Terramycin was used successfully in treating WHITE SCOUR in calves.

In the four-year period 1950-53, 69 cases of JOHNE'S DISEASE were diagnosed, all in imported animals or their offspring. A list of papers published is given.—J. A. GRIFFITHS.

NEW ZEALAND. (1955). **Department of Agriculture. Annual Report of the Director-General of Agriculture for the year ended 31 March, 1955. Includes Final Report of Marketing Division.** [FAWCETT, E. J.] pp. 164. Items of veterinary interest: Animal Research Division pp. 40-72; Animal Disease Division pp. 101-128; Dairy Division pp.

129-157. Wellington: R. E. Owen. **2753**
5s. 6d.

In three cases of CANINE VIRUS HEPATITIS in which diagnosis had been made by liver impression smears and the histology, the liver contained lead in excess. It is suggested that plumbism may be one of the predisposing causes of the infection in dogs.

A vibrio infection in Australorp chickens in the brooding and growing stages, when there was a moderate incidence of coccidiosis and blackhead, and the growth of the chicks was stunted, was cured by streptomycin, 50 mg. per bird, injected intramuscularly, followed by 50 mg. each in the food daily for three days. The response to treatment was rapid and the improvement maintained.

Lambs with WHITE MUSCLE DISEASE were successfully treated with 500-mg. doses of α -tocopheryl acetate daily for three days. Two groups of 25 hoggets were fed on turnips for three months. One group received in addition 500-mg. doses of α -tocopheryl acetate every 14 days and similar doses seven days and one day before the two groups were taken off the turnip ration and driven three miles to a bare paddock, kept there overnight and driven three miles the next day. Sixteen of the control group became affected but none of the treated group. Lambs were given 250 mg. α -tocopheryl acetate as a preventive and affected ones were given a 500-mg. dose.

Considerable chemical work has been carried out on toxic fractions isolated from North African phosphate.

Rust-infected oats gave better weight gains in one group of g. pigs per unit of food consumed than sound oats did when fed to a second group of g. pigs.

Livestock condemned under the Stock Act included:— 8,617 on account of TUBERCULOSIS; 513, JOHNE'S DISEASE; 328, ACTINOMYCOSIS and ACTINOBACILLOSIS; 2, BOVINE MALIGNANT CATARRH. The net compensation less salvage was £13,916. Slaughter compensation for 4,339 sheep and goats affected or in contact with SCRAPIE was £54,000.

In tuberculin tests on 29,295 cattle, 2·6% reacted. Dairy herds showed 4·26% reactors in 68,216 cattle.

Dirofilaria immitis was found in two sheepdogs, both of which died.

LEPTOSPIROSIS occurred in cattle and pigs throughout New Zealand. Sporadic cases of LISTERELLOSIS occurred in sheep. VIBRIOSIS

has been implicated as a cause of sterility in cattle and sheep. 83,676 cattle were vaccinated against BRUCELOSIS by field officers and many more by veterinary practitioners. Tests on beef herd yearling heifers showed that 10% were reactors. Infection with a brucella-like organism caused STERILITY in rams and ABORTION in ewes. The incidence of *Echinococcus* is not lessening. Condemnations of adult sheep livers at meat inspection are 75% of carcasses examined; large percentages of lamb and beef livers are also condemned.

TETANUS occurs in all parts of New Zealand where castrations and docking are not carried out aseptically. The use of rubber rings is condemned owing to the increasing number of cases of TETANUS which occur among animals so treated.

Poultry diseases mentioned were ENCEPHALOMYELITIS; COCCIDIOSIS; LEUCOSIS; FOWL POX; BLACKHEAD (HISTOMONIASIS); "X DISEASE" of chicks.—J. A. GRIFFITHS.

UNION OF SOUTH AFRICA. (1955). **City of Johannesburg. Report of Director, Abattoir and Live Stock Market Department for the period 1st July, 1954, to 30th June, 1955.** [ROBINSON, M. C.] pp. 16. Johannesburg: Radford, Adlington, Ltd. 2754

Slaughterings included 214,110 cattle, 125,835 pigs, 862,714 ovines, 46,841 goats and 8,947 equines. Condemned meat amounted to about 1,518 tons. The commonest causes for condemnation were: Cysticercosis (accounting for over a third of the cattle condemned and about two thirds of the pigs condemned); bruising in cattle, emaciation in mutton and beef; gangrene, mostly in cattle. Other conditions encountered were: caseous lymphadenitis and fever in sheep and goats; pleurisy and peritonitis in cattle; TB., gangrene, pyaemia, pleurisy and peritonitis, in that order, in pigs. Routine inspections of 1,042 dairy herds comprising 72,061 cattle were carried out. Biological tests of the city milk supply revealed TB. contamination in samples from 10 herds. The affected cows were traced and destroyed. The ring test and biological tests were used for the investigation of contagious abortion in dairy herds.—T.E.G.R.

FEDERATION OF RHODESIA AND NYASALAND. (1955). **Annual Report of the Secretary to the Federal Ministry of Agriculture which includes the Department of Research and Specialist Services, Conservation and Extension Services and Veterinary Services for the year ended 30th September, 1954.** [BROOKS,

N. E.] pp. 115. Zomba, Nyasaland: Govt. Printer. 2755

There was a recurrence of EAST COAST FEVER (*Theileria parva* infection) after an interval of seven years. On one farm there were 4 deaths and 288 animals were slaughtered. There were 33 outbreaks of *Theileria* infection other than East Coast fever and 373 deaths. The position regarding TRYPANOSOMIASIS is serious. None of the methods tried has been successful in eradicating the tsetse fly or in preventing its spread into new areas of Southern Rhodesia.

There was an increase in the number of dairy herds tuberculin tested under the Voluntary Testing Scheme. Of 13,525 cattle tested 0.52% were reactors. The Matabeleland Ranch had 20.5% reactors in 29,442 cattle tested in 1953, but after the elimination of the reactors, tests in May 1954 showed only 3.4% reactors, and a further test after the slaughter of the reactors in July 1954 showed 0.54% infected. There were seven outbreaks of ANTHRAX and 44 deaths. 85,152 animals were vaccinated. There were 170 outbreaks of BLACKLEG and 816 deaths. The laboratory issued 349,024 doses of vaccine. BOVINE CONTAGIOUS ABORTION: Of 6,085 blood samples from cattle 7.87% were infected. Vaccination is voluntary. 44,715 doses of vaccine were issued.

The last cases of the 1952-53 FOOT AND MOUTH DISEASE outbreak carried on to November 1953 and quarantine restrictions were removed in March 1954. Two outbreaks occurred in June and a third in August 1954. Field virus inoculations were given. There were 183 confirmed cases of RABIES. These included 6 human beings, 154 dogs, 2 cats, a horse, a donkey, 7 cattle, 3 sheep, 7 jackals and a hyena. 121,054 dogs were inoculated (about 70% of the total). There were 27 deaths from RABIES after inoculation among the 338,936 dogs treated since 1951. Eleven of these died less than three months after vaccination, two between three and six months after, nine more than six months and five about three years after vaccination. There was an outbreak of (African?) SWINE FEVER on one farm: 221 pigs were slaughtered. There was no extension of the disease.

There are 4,727 dipping tanks and 615 spraying units. Meat inspection is carried out by the Veterinary Department. Of 291,235 carcasses examined, 2,889 were condemned, the main reasons being emaciation, "measles", oedema and sarcocysts.—J. A. GRIFFITHS.

BOOK REVIEWS

ROBERTS, R. B., COWIE, D. B., ABELSON, P. H., BOLTON, E. T. & BRITTEN, R. J. (1955). *Studies of biosynthesis of Escherichia coli*. pp. xiv+521. Washington, D.C.: Carnegie Institution of Washington. Publ. No. 607. \$2.50. 2756

Much attention has been focused on the possible pathogenicity of *E. coli*. It seems quite clear that some strains are associated with deaths in babies and in young calves due to various forms of gastro-enteritis. The importance and urgency of these related problems require a wide front of attack, and in order to establish the nature of the pathogenic activity of the organism it is desirable to determine whether or not there is some characteristic biochemical pattern. The work by Roberts and his colleagues forms a useful contribution in this direction.

This monograph is informative and interesting, although the specialist nature of the work is likely to have a greater appeal to the biochemist than to the microbiologist or to the clinician. The work is clearly set out and lucidly explained, the diagrams are good and excellent use is made of chromatography and auto-radiography. On the other hand the great mass of factual information makes an overall interpretation of the many observations very difficult.

On a more specific point of criticism it is noted that practically no attention has been paid to the isolation or study of the polysaccharide fraction of *E. coli*. In fact the authors appear to have failed to identify this type of substance. This is rather surprising in view of Boivin's fundamental discovery, now well established, that *E. coli* strains contain an antigenic polysaccharide/phospholipid complex with toxic properties and easily extracted by cold trichloroacetic acid. Two more general criticisms are, first, the lack of a detailed index, and secondly, the inclusion of a very large bibliography, which although extensive and helpful for general reading is not specifically related to the text.

Probably the most enlightening comments are made by the authors' own Epilogue. Quite obviously they have enjoyed the work they have reported and it is refreshing to find enthusiasm so positively expressed in a scientific work of this nature. It is hoped that this enthusiasm will stimulate them to probe more deeply into those problems on the pathogenicity of *E. coli* that are of interest to a

much wider group of scientific investigators.

—D. G. HARVEY.

— (1955). *Mechanisms of microbial pathogenicity. Fifth symposium of the Society for General Microbiology, held at the Royal Institution, London, April 1953.* [Edited by: HOWIE, J. W. & O'HEA, A. J.] pp. x+333. Cambridge: University Press. 25s. 2757

The sixteen contributions contained in this volume formed the basis for discussion at a meeting of the Society for General Microbiology held on the 19th and 20 April 1955. The contributors had been asked to concentrate upon the parasites and their attributes rather than upon the hosts and host-parasite relationships. The result is a wide review of the physiology of micro-organisms and their disease-producing properties.

The first chapter by A. A. Miles supplies an essential introduction by establishing working definitions and outlining the problems in measuring virulence.

A general account of bacterial toxins in the production of disease is contributed by W. E. Van Heyningen and the toxins produced by clostridia are dealt with in two chapters by M. G. Macfarlane and G. Payling Wright, while diphtheria toxin is discussed by A. M. Pappenheimer, Jr.

H. Smith & J. Keppie contribute a review of chemical factors involved in the disease processes caused by *B. anthracis* and the pathogenicity of the tubercle bacillus is discussed by R. J. Dubos.

The virulence of *Pasteurella pestis* for mice is discussed by T. W. Burrows from the point of view of resistance and sensitivity to phagocytosis.

The pathogenicity of protozoa in both vertebrate and invertebrate hosts is dealt with in four chapters by F. Hawking, P. C. C. Garnham, B. G. Maegraith, C. A. Hoare and R. A. Neal. These contributions are largely concerned with host-parasite relationships and the pathological effects of parasite invasion.

The pathogenicity of fungi for vertebrates is discussed by G. C. Ainsworth and the production of plant diseases by micro-organisms is reviewed in three chapters by R. K. S. Wood, who considers pectic enzymes produced by plant pathogens, P. W. Brian who discusses the role of toxins in the aetiology of plant diseases, and by W. G. Keyworth in studies on the mechanism of invasion of plants by vascular fungal pathogens.

Not only does this volume contain first-hand comments by authorities on its subject, but it should provide a useful source of references to a widely dispersed literature.

—L. P. JOYNER.

SARKISOVA, A. K., KAPUSTIN, V. F., KVASHNINA, E. S. & KOROLEVA, V. P. (1953). [Atlas of fungi pathogenic for farm animals and birds.] pp. 158. Moscow: Sel'khozgiz. 10r. 90k. **2758**

This atlas represents the first attempt to bring together illustrations of fungi causing disease in animals. The first section deals with the species which are directly pathogenic and gives clinical illustrations of epizootic lymphangitis, actinomycosis, ringworm, aspergillosis, and moniliasis, together with photographs of the causal fungi in both pathological material and in culture. The second section is on mycotoxicoses including stachybotryomycosis, ergotism and several other conditions due to fungal poisoning (caused by *Fusarium* spp.) which are not yet recognized in Great Britain. In the last section seventeen species of common saprophytic moulds encountered in food and in pathological material are illustrated. The photomicrographs throughout the book are particularly fine.

—P. K. C. AUSTWICK.

BUXTON, P. A. [London School of Hygiene and Tropical Medicine]. (1955). *The natural history of tsetse flies. An account of the biology of the genus Glossina (Diptera)*. pp. xviii + 816. London: H. K. Lewis & Co. Ltd. (Memoir No. 10 of the London School of Hygiene and Tropical Medicine.) 84s. **2759**

This book is a comprehensive account of the species and biology of the genus *Glossina*, but its great value lies in its further object of correlating laboratory knowledge of the species and their physiology to conditions in the field, and the application of this knowledge to the problems of control and eradication.

There is a description of the morphology of the adults with a key to the species—a modification of that of Smart (1948)—and three regional keys. There are chapters on the various important aspects of the physiology of the fly in feeding, digestion, metabolism and excretion, sources of food and the stimuli attracting the fly to the host, an understanding of which is necessary to interpret the results of work in the field on population densities, effects of climate and vegetation, host preference and natural predators. A long and detailed chapter describes methods of control

of the fly by trapping, insecticides, game eradication and clearance of vegetation with description of work undertaken and a critical discussion of its effectiveness.

The concluding chapters deal with the importance of the tsetse as a vector in the epidemiology of trypanosomiasis, the relationship of the trypanosome and the tsetse, and the tsetse in relation to disease. There is an extensive bibliography and a detailed index.

—W. E. PARISH.

JUKES, T. H. [Research Division American Cyanamid Company, New York.] (1955). *Antibiotics in nutrition*. pp. 128. New York: Medical Encyclopedia, Inc. \$4.00. [Antibiotics Monographs No. 4.] **2760**

This monograph is a review of experimental studies of chlortetracycline, oxytetracycline, penicillin, bacitracin and streptomycin in the nutrition of animals and poultry. The four main chapters deal with the mechanism of the growth response to antibiotics, their effect on nutritional requirement, their use in animal production and their physiological effects. There is a useful bibliography comprising 439 references.—M.G.G.

— (1956). *The comparative endocrinology of vertebrates. II. The hormonal control of water and salt-electrolyte metabolism in vertebrates. Proceedings of a conference held at the Department of Zoology, University of Liverpool from 12-16 July 1954. Memoirs of the Society for Endocrinology No. 5*. [Edited by: JONES, I. C. & ECKSTEIN, P.] pp. ix + 124. Cambridge: University Press. 25s. **2761**

This volume is the reported proceedings of a symposium. Fundamental problems on the hormonal control of water and salt electrolyte metabolism were the basis of two or three papers with special reference to higher vertebrates, amphibia, and fish respectively. Studies on the frog skin, and the role of endocrine organs in the salinity tolerance of trout were also presented to the Conference.

—D. S. PAPWORTH.

BERGE, E. [Direktor der Chirurgischen Veterinärklinik der Justus Liebig-Hochschule, Giessen.] & WESTHUES, M. [Vorstand der Chirurgischen Universitäts-Tierklinik, München.] (1956). *Tierärztliche Operationellehre. [Text-book of veterinary surgery]*. pp. xi + 374. Berlin: Paul Parey, DM 29.60. **2762**

This book is a fusion of two books—the Pfeiffer-Westhues "Operationskursus" and the

Röder-Berge "Chirurgische Operationstechnik". The former was in its 17th edition and the latter in its 9th edition, so the edition number of the present book is 27th. The publisher of the first book was the firm Richard Schoetz, which has recently been acquired by Paul Parey Verlag. The merging of the two books, which cover much the same ground, is clearly a good thing from both publishers' and readers' points of view.

The new book deals with veterinary surgery in a comprehensive, concise and systematic way. It covers all the common domestic animals, and the important points in anatomy, instrumentation, anaesthesia and technique are set out clearly.

The 264 excellent figures support the text.

The first section of 80 pages deals with general surgery technique, antisepsis and anaesthesia; the last section of 12 pages deals with methods of restraint, whilst the rest of the book covers regional surgery. The authors describe what, in their opinion, is the operation of choice for the surgical treatment of the specific diseases and so it is unlikely that every veterinary surgeon will be disposed to agree with them. This applies with even greater force to methods of anaesthesia and perhaps restraint.

For the veterinary student the book is clearly an excellent instructor and an English edition would be in brisk demand.

—J. EDWARDS.

SMYTHE, R. H. [Examiner in Surgery to the Royal College of Veterinary Surgeons.] (1956). **Veterinary ophthalmology**. pp. xi+356. London: Baillière, Tindall and Cox. 2763

The appearance of a text-book devoted solely to veterinary ophthalmology is a measure of the advances which are taking place in the more specialized aspects of veterinary medicine. There can be little doubt that the eye and its diseases, in spite of their importance, have not, up to the present, received that detailed attention that they deserve and a specialized text-book dealing with them is, therefore, to be welcomed.

The text is arranged into two main sections, Part I dealing with the anatomy and physiology of the eye, and Part II with clinical ophthalmology. A full account is given of the structure of the eye in the various species, together with a consideration of congenital abnormalities. A short account of the extent and scope of animal vision follows and then the optical system and accommodation in

animals are dealt with in some detail. In Part II an account is given of the clinical examination of the eye, including a useful description of methods of restraint. The various diseases of the eye and its related structures are then considered in orthodox fashion under aetiology, prognosis, diagnosis and treatment. Descriptions of surgical operations, such as extirpation of the eye are also given.

Although at times the text becomes a little discursive and involved nevertheless the author has succeeded in producing an excellent text-book on veterinary ophthalmology, which may be highly recommended to practitioners and students of veterinary medicine.

—J. A. NICHOLSON.

COMAR, C. L. (1955). **Radioisotopes in biology and agriculture. Principles and practice**. pp. xiii+481. London: McGraw-Hill Book Company, Inc. 67s. 6d. 2764

Through this book the author wishes to acquaint the research biologist with the principles of radioisotopes, and the application of these principles to experimental work. Emphasis is laid on the practical aspects of the subject. After presentation of the theory in the first chapter, the bulk of the work deals with the basic difficulties, radiation hazards and their prevention, laboratory equipment, the various techniques of radioassay, the properties of the individual isotopes and directions for their use, autoradiography, paper chromatography, ion exchange and radioactivation analysis. A list of references follows each chapter; there is a glossary and a list of the available radioisotopes.—M.G.G.

— (1955). **Breeding beef cattle for unfavourable environments. A symposium presented at the King Ranch Centennial Conference**. [Edited by: RHOAD, A. C.] pp. xiv+248. Austin, Texas: University of Texas Press. \$4.75. 2765

The centenary of the King Ranch, Texas, was celebrated by a four-day conference, which was attended by research workers and cattle breeders from various parts of the world. Nineteen papers were read, two of them by members of the King Ranch. They deal with the effect of unfavourable environment on cattle, soil fertility, improvement of grasses by selective breeding, factors concerning beef quality, and the technique and problems of breeding cattle for tropical and sub-tropical conditions, with special reference to the Santa Gertrudis breed. A list of references accompanies many of the papers.—M.G.G.

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